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THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

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TRADE PROSPECTS.

THE building trade, like other trades, may thrive for a time under temporary and artificial conditions, but apart from these it is undeniable that the fortunes of the industry are inseparably bound up with those of other industries. The recent speeches of Mr. Baldwin (President of the Board of Trade) and Mr. McKenna upon trade prospects are particularly interesting at this time. Mr. Baldwin seems to think that commodities as a whole are sufficiently near the bottom prices to encourage traders to begin to buy, and that this is a necessary precedent condition to any improvement in trade. His forecast at the moment is that "trade will continue the slow and gradual improvement" which he believes has begun. Mr. McKenna considers that there is reason to support the opinion that the volume of trade is increasing, but that there is no indication for the time being of a coming trade boom. Apparently what can be said—and it is more the expression of a hope than a prediction—is that there is some movement, and though the pace be slow, it is in the right direction.

Mr. McKenna draws attention to a point which is frequently misunderstood, namely, that cheap money such as we have now is a sure sign of general trade inactivity, which naturally has had the effect of raising the value of securities on the Stock Exchange. On our part we feel that it is always a delicate matter to comment on trade prospects; optimism is what is wanted, even if it has no relation to knowledge. During times of bad trade there is a marked tendency to ignore the pure qualities of mind which diagnose an industrial disease, and to welcome the cheery opinion of the professional optimist. On this point, Mr. McKenna says: "A rational optimism is undoubtedly to be recommended as a habit of mind. It encourages confidence, stimulates the spirit of enterprise, and sustains our energy. But we must not allow it to warp our judgment or obscure the realities of the position. We have had our lesson in this respect. We remember only too well the optimism which prevailed in the months immediately succeeding the war, when, so far from realising that the war had left our national organisation impoverished and weakened, we entertained delusive hopes of a higher material standard of life to be obtained with less effort and shorter hours of work."

We are all looking for a message of encouragement; we would like to think that the tide has turned, and that we may expect good trade. It is frankly admitted that many people would prefer an optimist whose opinions eventually turned out to be wrong than a pessimist whose opinions turned out to be right. In many respects it is the optimistic outlook which produces the most satisfactory results. To put the matter crudely, if the optimistic view proves to be wrong and prices continue to fall, the contingent losses serve to average out the profits obtained when prices were going up. An optimistic outlook produces work for the unemployed and, in spite of any economic force working against the optimist, it is essential that the cost of finding employment should be shared by those who can afford it. It seems the natural process to deflate our prices slowly, and to do so it is necessary that someone should find a certain amount of work. When we think of the fall in prices during the past year or two, we realise how much more serious losses would have been had the liquidation process been accelerated. In the same way we may or we may not have yet reached the bottom in prices, but it is idle to expect that we shall all strike the right time in our purchases and commitments, and it is questionable if we have a right to expect to. We draw a distinction between the advice which states definitely that prices have stabilised, that now is the time to purchase and entrust all classes of work, and the advice which realises that even if prices are not at the bottom it is not necessarily in the best interests of the nation to postpone work while there are reasons which would appear to justify the starting of a good many long-deferred undertakings, especially if any further reductions in wages and materials are allowed for in the contract. It is not yet realised that the confidence which the public is asked to give is not the confidence which expects every transaction to be a bargain, but the confidence which is willing by taking a certain amount of risk to ease the burden of depression and help unemployment until we reach that level of prices which will bring steady work to all. We realise that individual losses may be made in some cases even if the net result is that the nation is no poorer by a certain number transferring its money to others. It is much better that this should be so than that the Government should do the work for us and take it back again in the form of taxation.

To certain trades the real danger arising from too confident an outlook lies in the tendency to pile up stocks of goods, which, if prices fall, result in huge losses. We have frequently mentioned that this is a contingency which hardly applies to the building trade. Houses built for speculation undoubtedly come under the same category as stocks, but the great proportion of work in the building trade is represented by definite orders. We believe, therefore, that improvement in trade generally will be reflected in the building trade.

In this connection we cannot do better than quote the words of Mr. Paul Waterhouse, President of the Royal Institute of British Architects, in his remarks at the annual dinner of the Institute on the 24th ult. "A great many of us," he said, "have been asked from time to time by our clients and members of the public if we could give advice as to whether they were to save their money for a further fall in prices. I am aware that many of my friends are very anxious to make a public expression on the point; it is dangerous to prophesy, but it is never dangerous to give an honest opinion. The conclusion which I have come to, and to which I know nearly all of you subscribe, is that, wise as the public has been in reserving their money during the past year, the time is closely at hand when the liberation of that money would be a wise policy on their part, although no one can guarantee that there will not be a further fall in prices. There have been great falls already, and there is a further fall of 2d. per hour in the wages of the operatives coming next month." This fall has now taken place, and it makes a total drop in wages since the highest point of 1920 of 5d. per hour; it has also been provided in the agreement reached that: (1) the wages resulting from the application of the resolution remain stabilised until March 1 next; (2) the hours of work resulting from the application of the resolution, 44 hours per week, reduced to 41½ during December and January, remain stabilised until March 1 next.

In our remarks we have been discussing the point of view of the individual as opposed to that of the Government. Wrong decisions on behalf of the public, whether in the form of funding loans or housing schemes, differ to this extent—that if they are wrong the standing charges for miscalculation remain as a burden on the nation.

NOTES.

The Assessment of Values.

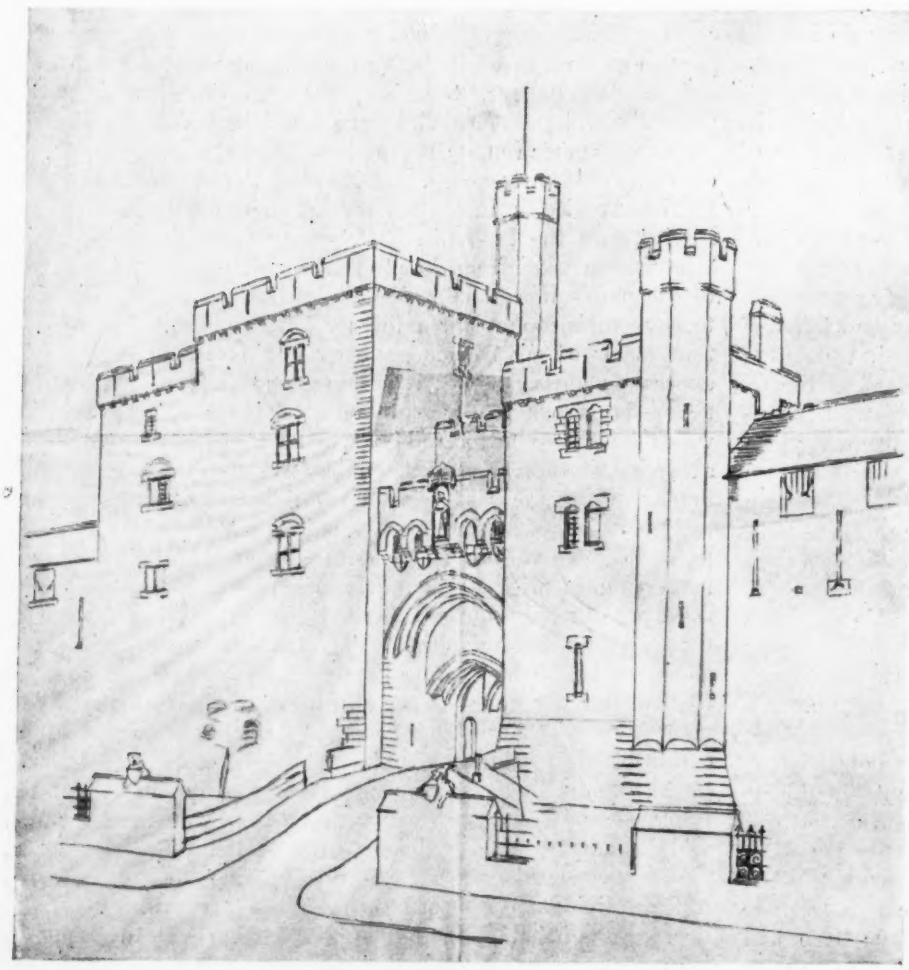
WE spend a great deal of time and thought in the appraisement of values nowadays—far too much some of us think—and presently we shall find that the assessment value of our property is far greater than we dared to hope! But, apropos of values in the world of art, a correspondent, who is evidently of an analytical turn of mind, wonderingly asks what the architectural profession will think of the award from the Paris Salon of gold medals to Sir John Burnet and Mr. J. W. Simpson, of a silver medal to Mr. Guy Dawber, and of a bronze medal to Sir Edwin Lutyens. He asks if this is because the jury knew too much or because they knew too little.

The Gospel of Limewash.

WESTMINSTER ABBEY belongs to us as well as to mediæval life. It is a part of our inheritance, and to preserve its life is a duty. There is no doubt, says a correspondent, that limewash as a preservative of stone is almost unequalled; it is also very beautiful. Through repeated application each successive coat adds to its delightful surface and texture, so that if limewash is used it must be used continually. The Welsh cottage or Cumberland farm is probably limewashed every year. It resists damp and the injuries due to frost almost better than any other form of protection. There is one objection to those who find merit in the expense of a material, which may be less operative, however, at the present time. The cost is nearly negligible. Unfortunately, dirt is not a shock to us in London—cleanliness would be. Cleanliness, with a lustre of beauty and romance thrown over it, limewash can secure for us. What a different London it would be if all our yellow stock brick were limewashed over, and what a contribution to health!

Westminster Abbey.

THERE needs no conversion to see that masonry coated over with soot, and subject to chemical deterioration all the time, is not beautiful. The surface quality of masonry is lost in such a way. It is lack of imagination which has accustomed us to dinginess, and established dirt in our midst, and this stands in the way of improvement. There is much to be said for the suggestion to limewash the Abbey. The cast shadows of limewash are lovely in colour, and in sunlight they would glorify the building. If, living in the semi-darkness and drabness of London's buildings a temerity is felt in embracing the scheme as a whole, let a portion be treated; though our feeling is that the kind of caution that such attitude suggests is not a healthy one. And for another thing, let not the matter be brooded on by too many committees or squadrons of art directors, and let the expert cease from troubling. These are really plain matters when we rub our eyes and emerge out of superstitions. An age confident in itself would embrace such a scheme without too many qualms—and so we say, "limewash the Abbey."



Cardiff Castle: Sketch of proposed New Entrance Tower.
[As originally designed by the late WILLIAM FRAME, A.R.I.B.A.]

"The Old Vic."

IT was welcome news to read in *The Observer* last Sunday that the £30,000 asked for by "The Old Vic" to meet necessary structural improvements, had been subscribed by one donor. Anyone who has been behind the scenes at the Waterloo-road Theatre must have been astounded at the lack of space, and at the courage displayed by the management and players in persevering under such cramped conditions. The Old Vic is now a national institution, the only theatre in England where Shakespeare can be heard almost the whole year round, and where the best work coincides with the lowest prices. The interest that *The Observer* has taken in the appeal and the generosity of the reply are sufficient to prove that an appreciation of really good work is not dead, as some pessimists would have us believe.

White Elephants.

MR. A. E. EXETER'S letter under this heading which appeared in our issue for June 2 provides food for thought. The difficulty of altering reinforced concrete buildings is fully appreciated by the present generation; we realise that such a building is up for better or worse. It is interesting to speculate on what our present position would be if, for instance, Regent-street had been built in ferro-concrete. Should we be rebuilding it now, or should we find the expense of pulling it down so excessive that we should be compelled to make the best use we could of the buildings, possibly merely adding an additional story? If Mr. Belloc is a true prophet, our descendants will be incapable not only of demolishing our great reinforced concrete structures but of erecting anything comparable with them; if, on the other hand, the technical skill of posterity is superior to our own it will nevertheless be hard put to it when it attempts to demolish reinforced concrete on a large scale. The life of a concrete building is likely to be a long one, and this should be an additional incentive to produce creditable work.

Higher Buildings.

A CORRESPONDENT, writing in *The Times* for June 1, gives a list of evils which would arise from increasing the heights of buildings in London; he points out that even at present artificial light is becoming more and more a

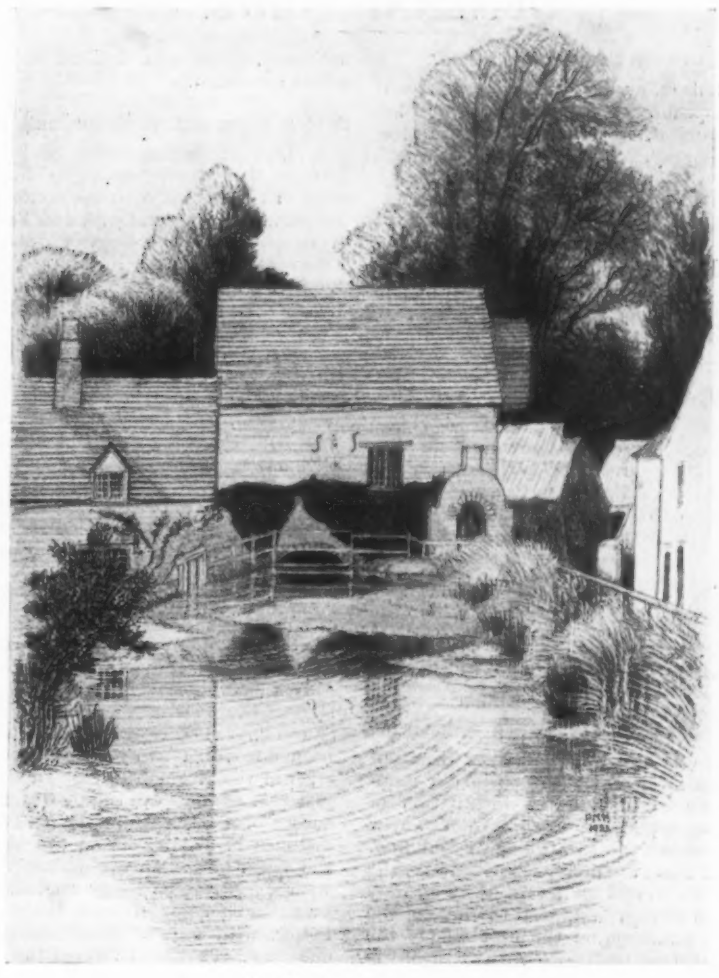
necessity on the brightest day, and he ends his letter with the remark: "Surely this position, impossible of improvement, should not be aggravated by a concession to architecture or finance." The overwhelming vote of the Royal Institute of British Architects against higher buildings appears to have escaped public attention, and it is unfortunate, in view of that vote, that the impression should exist that higher buildings are architecturally desirable. Many architects will agree with the suggestion that higher buildings would be a concession to finance, and some will add that such a concession would mean the sacrifice of the public good to the financial interests of a small section of the populace.

Why "A Palace of the Arts"?

THE discussion raised on this subject in a contemporary is interesting as emphasising the disparity of view between the old-established ways of thinking about art, and those of the younger and developing generations. There should be much interest in the results of the "Faculty of Arts" Conference, and in the views expressed. We do not think it is sufficiently appreciated how vital is the change of view from that of the old exclusive art detached from life, and that of its plain service to human needs, and so we are sorry to see such a title as "Palace of the Arts" spoken of, which carries along with it the old sentimental and inflated character. In thinking of a need which has grown out of this fundamental change of view, we should adopt the language of reality. An Art Industries Fair, or Market, would better denote the character. For what is happening is no less than the democratisation of art. Institutions go on long after the life has passed out of them, and the multiplication of art societies is no evidence of the national well-being of art. The evidence of this will not lie in its separation from commerce and industry, but in its closer identification with it; the claim of the arts equally with other industries to receive equal treatment, to serve life on equal terms. For this, it is not hanging committees and exclusive societies that can much longer serve, but such an organisation as sets this democratic seal upon its work by presenting art free to make its own claims, and to succeed or fail, subject to the judgment of public opinion like any other industry. What art needs is a market, not a Palace, and to merge its being into the common life.

The Reward of Artists.

AN article in *The Times* on this subject would suggest that the artist now fights "a lonely rearguard action for the salvation of a careless mob," and contrasts his life against his more fortunate brethren of the sixteenth century. But were they so much more fortunate? No times are really favourable to art, and the art that depends on favourable circumstances, a ready-made public, "an inspired and advancing army" of appreciation, is mere moonshine. The history of the artist is the opposite of all this sentimentality. Favourable circumstances may combine to foster genius, but its stronghold lies in itself, and if the arts—which is not true—now hang so loosely on life that their efforts can be described as a "lonely rearguard action," it is because artists are so few—because so many artists care so little about art. More, perhaps, cared for it in those days—gave more for it. But what is needed now is to raise the whole outlook on art, both for the artist and the nation, and when they both seek the same and better rewards, life will bring them together again and flower into new and wonderful expression.



Little Farringdon Mill.
From a lithograph by MISS PATIENCE HALLWARD.

The Architecture of Our Streets.

THE public appreciation and understanding of architectural values should be materially assisted by such articles as those which have appeared in the Liverpool Press on street architecture in that city and those now beginning in *Country Life* on London Streets and their Recent Buildings, by Prof. Reilly. It is a heavy indictment of our authorities, which shows how the control which should have guarded over our fine thoroughfares has been thrown away in allowing the wreck of those fine qualities which made Regent-street what it was. This means much to lovers of architecture, and it also means much to those taxpayers who are really the owners of Regent-street and see the commercial damage of the new haphazard buildings. Professor Reilly says "The Regent-street the Empire knows and loves will lose its unique character, and with that will go, if it has not already gone, its shopping superiority. If, in spite of its new and increased rentals, it becomes a nondescript shopping street like Oxford-street—and it is well on the way to that—London and all of us will have lost both cash and credit too."

Riverside Possibilities.

IT is a pleasure to note the disappearance of the wooden buildings from our beautiful Embankment Gardens. There is now only the original sin left—the unsightly obstruction of the Charing Cross Railway Bridge. The completion of the great County Council Buildings will surely stir the imagination of the public as to the splendid possibilities of a wide road bridge at Charing Cross which would link up the north and south sides of the Thames into a living unity, without any undue break in the fine line of gardens which stretches from Waterloo to Westminster.

GENERAL NEWS.

Llandaff Diocesan Dilapidations Board.

Col. Cecil Wilson, architect, Cardiff, has been appointed inspector of dilapidations for the diocese of Llandaff, in succession to the late Mr. G. E. Halliday.

R.I.B.A. Gold Medallist.

Mr. Thomas Hastings, of New York, Roya gold medallist, 1922, will arrive in England about June 23, accompanied by Mrs. Hastings and several friends. He will be present with Mrs. Hastings at the Council dinner on June 26, and will receive the Royal gold medal in person at a general meeting on the same evening.

Baltic War Memorial.

A memorial to those connected with the Baltic Exchange who lost their lives in the war was unveiled on Thursday last week by General Sir Herbert Alexander Lawrence. The memorial consists of a massive and artistically designed window, the work of Mr. Dudley Forsyth. In the design are allegorical groups representative of Faith, Truth, Fortitude, Justice, and Hope, and above, in the dome, the Temple of Fame, and a scroll emblematical of victory. Panels contain the names of the men killed and the various battles in which they took part.

Bristol Cathedral Renovation Scheme.

A meeting was held in the Chapter House of Bristol Cathedral recently to consider a renovation scheme to include the installation of proper heating apparatus, the provision of new vestries and repairs to the fabric of the building.

Mr. Roland Paul, architect, suggested that the present vestries should be swept away entirely and re-erected at right angles on the lines of the old monastic buildings on the east side of the cloister. As a rough estimate of the cost of the scheme, including the Berkeley chapel and certain repairs to the fabric, he considered a sum between £11,000 and £12,000 would be necessary. It was decided to approve the scheme outlined.

Garden Cities and Town-Planning Associations.

A tour of Italian towns of town planning interest has been arranged for September next in connection with the conferences of the International Garden Cities and Town-Planning Association and the Congrès International de l'Habitation at Rome. The party will leave London on September 14, and arrive back on October 1. Milan, Bologna, Florence, Rome, Pisa, Genoa and Turin will be visited in the order named. Six days will be spent at Rome. In each of the towns the party will be met and conducted. Special visits during the stay in Rome will be arranged. Further particulars will be supplied to possible participants on application to the Secretary at 3, Gray's Inn-place, W.C. 1.

Discoveries at Canterbury.

In the course of a paper at a recent meeting of the Kent Archæological Society at Canterbury, the Rev. R. U. Potts, F.S.A., referred to recent discoveries during excavations on the site of the old St. Augustine's Abbey Church at Canterbury.

The chief discovery, said the lecturer, was that of the floor of a large part of the original Saxon church—the first in England—which had been uncovered two or three feet beneath the level of the Norman nave. In the north aisle, just east of the sixth pillar, was the north-west corner of a brick wall which was carried for a distance of 58½ ft. across the nave, ending in the south aisle. In the middle was a doorway with a buttress on either side, the south one of brick and regular in form, the north one much larger, with a great stone taking the place of the brick. That wall formed the west side of a narthex, or porch, 13 ft. deep, and paved with an exceedingly hard and thick concrete floor, coloured red and blue. Then came another wall, broken and imperfect, and east of that, as far as the east wall, the floor was continued. The eastern part was much broken by holes for graves. The whole width of the west wall from north to south was the same measurement (58½ ft.) as that of the north wall, so that, unless the building extended much farther to the west, it must have been nearly square—apart from any apse to the east.

Other isolated foundations had been discovered but not examined. Lying on its side beneath the nave floor was found part of a column, 19 in. in diameter, similar to the two huge pillars in the crypt. How were they to preserve the precious floor walls of that first Saxon Church, and to preserve more effectually than at present the north porticus and its tombs? Was it too fantastic to hope that the twentieth century might preserve those relics of the sixth century by building over them a great church to be a thanksgiving for, and an inspiration to, the missionary work of the whole Anglican communion?

COMPETITION NEWS.

Bury.

The plans of Mr. C. R. Cooper, A.M.S.A., of 20, Market-street, Bury, have been accepted in a limited competition for the erection and completion of a super cinema to be erected in Bolton-street, Bury, for Messrs. The Castle Picture Palace Co., Ltd., of Bury. Mr. Halstead Best, architect, of Blackpool and Rochdale, was the assessor appointed by the Board of Directors to advise them as to the premiated designs.

Other Competitions.

Other competitions still open include the following (the dates given are, first the sending-in date, and second the issue of *The Builder* in which full particulars were given):—Trujillo (Peru) monument (June; Jan. 13); Auckland war memorial (June 30); Ipswich war memorial (June 17; March 3); R.I.B.A. Poster Competition (July 15, May 5).

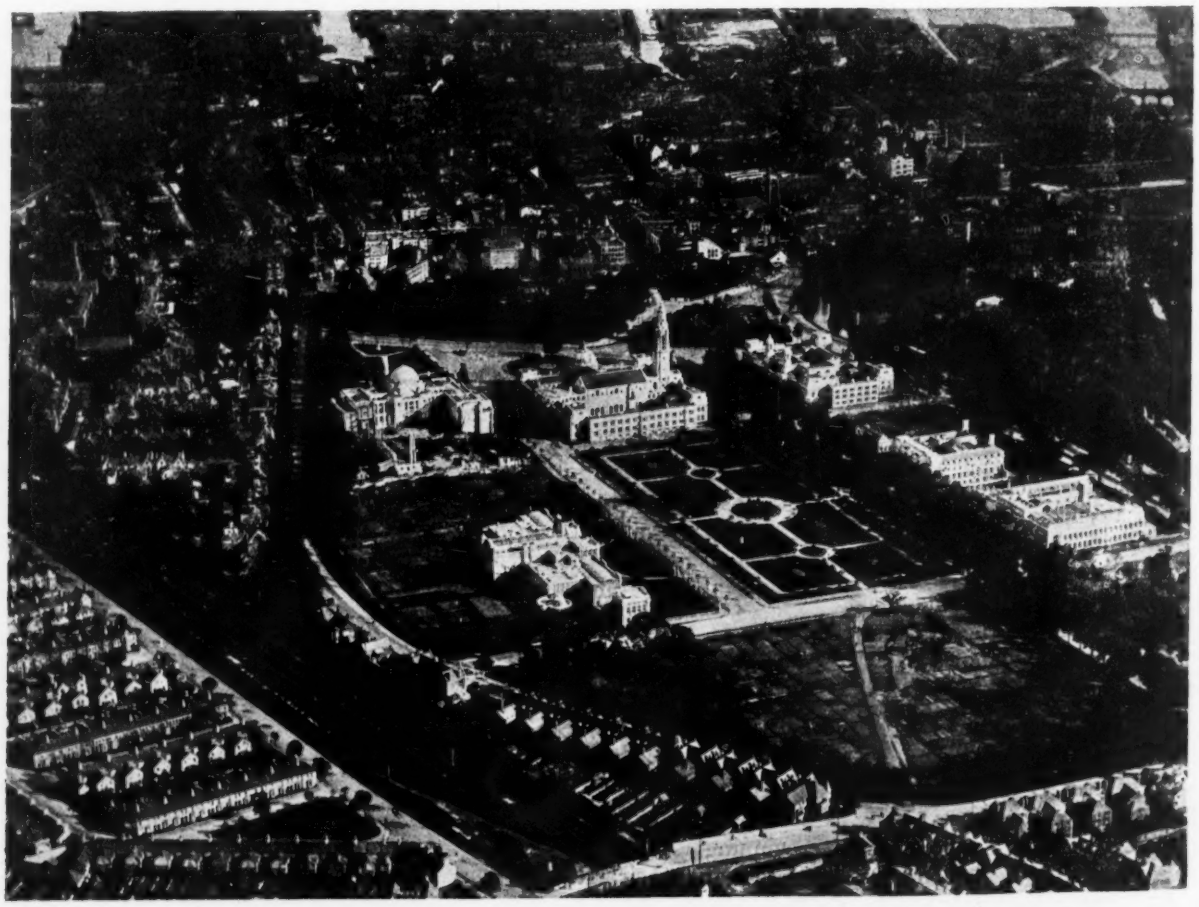


Photo: Aerofilms, Ltd

Aerial View of Cardiff.

[A plan of Cardiff Castle and proposed street improvement is given on p 876.]

CORRESPONDENCE.

Unification and Registration.

SIR,—I have read with interest the letter of Mr. Horace R. Appelbee in last week's issue of *The Builder*. As I was present at the meeting of unattached architects at the R.I.B.A., there are one or two aspects of the question to which I should like to call the attention of men interested.

As far as I have been able to follow the correspondence, all letters up to now seem very much to miss the main point, viz., that the matter is one that affects the future rather than the present. It is felt (and rightly) by a number of the leading architects that only those men who are qualified and registered should be allowed to practise, and so place architecture on a level with doctors of medicine, solicitors, &c. To bring this to pass it is, and will be, necessary to make a compromise with the present; moreover, it cannot possibly be done without this, and those men who are opposing this merely in view of the present are very short-sighted.

After all, the real test is not whether a man has A.R.I.B.A. or F.S.I. attached to his name, but whether he can keep successfully in business for a number of years. If he can, and, in addition, add to his business, this in itself shows that he has the real grit in him, and the point deserves far more attention than it receives. I have known of men who have had either A.R.I.B.A. and F.S.I. and have not been worth their salt as either architects or surveyors, and the diplomas did not save them from going under, nor will it in future, the real test being a man's ability and experience, which will take precedence in the long run.

I quite understand how the anomalies arise that Mr. Appelbee complains of; it is mostly caused by the almost silly class of test questions sometimes set at the examinations. To take the Surveyors' Institution's examinations this year, the questions were mostly quite simple, barring two catch questions, which, I am persuaded, not 2 per cent. of the candidates had heard of before entering the examination room. The questions set at an examination should be a real test of a man's ability, instead of letting in quite a novice who had been lucky enough to run against the items required in the catch questions; the effect of such is to let the inexperienced boy qualify, and to keep the good man out—exactly opposite to what it should be.

Mr. Appelbee has not, I think, grasped the real meaning of the movement towards registration, as trade unionism has no part or lot in the matter. The R.I.B.A. has always commanded the respect of even men like Mr. Appelbee and myself, who are outside, and who have felt that the Institute was doing the best it could with a difficult problem, the only criticism I have ever offered being that the Institute makes too much of good draughtsmanship. After all, a drawing is only a means to an end, and not the end. A man's work should not be judged by his drawings but by his buildings, and also from quite the art point of view.

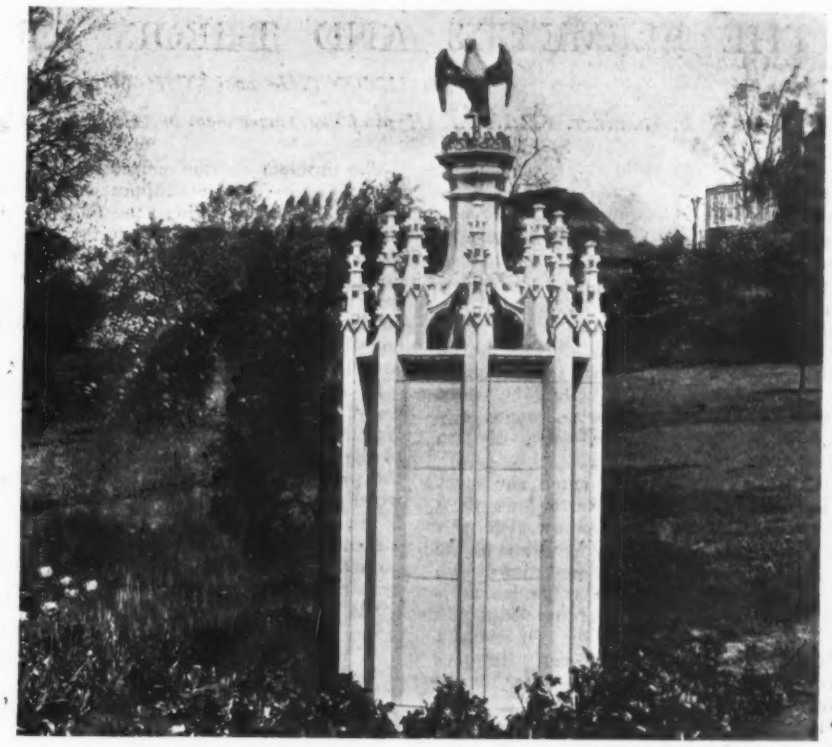
Many of us would unite now with the R.I.B.A., only, at our age, our hands are not steady enough to be expert draughtsmen, and so could not pass this test, but if we joined I tell you quite plainly that it would not be with an idea of getting anything for ourselves, but in order to meet the fundamental principles of registration. I hope architects will drop individual opinions and let all work together to one end—the benefit of the profession when we are gone and our opinions matter no longer.

W. CASSÉ.

Oxted.

Re Analysis of Building Costs.

SIR,—I have just seen in your last issue the review of my work on the above, and I beg to draw attention to one statement, viz.: "There is a serious fault in connection with diagram 13. . . . There is no explanation of the term *Internal Area*." The reviewer then goes on to assume a definition of internal area.



Tomb at Hampstead Cemetery. MR. C. F. A. VOYSEY, Architect.

I would point out that this diagram is on an absolute basis and no definition is required. No matter on what basis the area is calculated the figures given by the diagram will be correct for that basis.

W. HEPBURN WAINWRIGHT.

Edinburgh.

[**** Mr. Wainwright is correct in saying that the basis on which the area is calculated is immaterial, but for practical purposes his table has been designed with a special method of calculating the area in view. The ground floor area of an average cottage is about 500 ft., while the lowest area given in the table is 667 ft.; this, however, is easily adjusted. The trouble arises because the author has inserted the word "internal," whereas, on his own showing, he might equally well have said "external" or simply "area." An explanation on the lines of the above letter would have simplified an understanding of the diagram.]

Stone Preservation.

SIR,—May I throw out a suggestion, which, I believe, is new, as to a method for preserving decaying sandstones from further decay?

Certain compounds of alcohol-radicles with silica when exposed to moist air hydrolyse, deposit hydrated silica in a coherent form, and thus act as a cement. The ether can be thinned with alcohol, and is a very stable body as long as it is not exposed to moisture, and if a piece of rotten sandstone is treated with it in the course of a few days the sandstone hardens up and the resulting cement resists the attacks of acids.

Unfortunately, this process does not solve equally well the important problem of preserving limestones, since, though it binds the particles of limestone together, it does not protect the particles themselves from attack.

A. P. LAURIE.

Heriot-Watt College, Edinburgh.

Higher Buildings versus Our "Squat Cities."

SIR,—I remarked to a contractor during the Building Exhibition that there ought not to be a building of less than ten stories erected in "Greatest London." I was thinking at the time of a project for a new road from Barking to the sea or the estuary.

In your columns I have already made the suggestion for the utilisation of the existing railway lines in the London traffic improvement problem, but those outside the disc might also be used likewise.

Twelve years ago I made the suggestion in a contemporary for a "compound road," that is, for an express motor-road alongside the railway lines, supplemented by an ordinary road in connection with the above-mentioned project, when it matures.

The Barking, Upminster, and Pitsea line would be utilised, and a strip half a mile wide on each side of the railway scheduled and laid out in diamond-shaped squares so as to form a continuous street on a uniform plan, the carrying out of which might go on at different points.

Intersected in the middle diagonally by the line or new compound road, terraces would be planned on the margins of the squares of ten-story-high buildings facing green or cultivated areas, as opposed to the squat two-story cottages with their back yards, forecourts, and the interminable soul-depressing streets of our "squat cities."

"O. B. L. T."

Victoria and Albert Museum.

At the recent sale of the second portion of the Tomkinson Collection, the Victoria and Albert Museum was enabled, by the generosity of personal friends of the late Mr. Michael Tomkinson, to acquire an important series of examples of Japanese lacquer which have now been placed on exhibition in Room 41. In making the selection, special attention was given to the question of technique, and in this connection attention may be drawn to the specimens by Ritsuo and his school, of the late seventeenth-century, in lacquered basket-work decorated with pottery, pewter, &c. A writing-set in engraved lacquer (chinkinberi) is of great interest not only on account of its workmanship but as an example of Indian influence on Japanese ornament; and a fine example of seventeenth-century gold lacquer, a writing set in the form of a koto, also deserves reference. In addition, the collection includes examples of lacquer in imitation of leather, pottery and metal-work, as well as illustrations of the use of this material in connection with cherry-bark and natural wood. These purchases are separately exhibited as a memorial to the late Mr. Tomkinson, who was not only a great collector, but a well-known and active member of the Council of the Japan Society.

The Museum has also recently acquired several notable examples of 15th, 16th and 17th century lacquer as examples of the earlier stages of the development of the art in Japan.

THE ELEMENTS AND THEORY OF ARCHITECTURE.—X.

(BASED UPON THE FRENCH WORK OF M. GAUDET.)

BY T. P. BENNETT, F.R.I.B.A. (*Head of the Department of Architecture, Surveying and Building, Northern Polytechnic.*)

ROOFS

THE building, small or great, is raised. We have dealt with walls, doors, windows, porticos, &c.; the roof only remains to be considered.

The object of the covering is to protect the building from the heat of the sun, and to keep out rain and wind. We arrive, therefore, at the study of inclined planes. Even in dealing with flat roofs, the planes are inclined, although the inclination is slight. Except in very simple cases a roof plan is necessary before the study of the roof can be completed. Roof slopes may be flat, curved, or "broken," *i.e.*, of two different slopes.

Of all dispositions of roofs much the most simple is the pent roof, or "lean-to," a typical example being the roof over the low aisle of a church, abutting against the higher walls of the nave. More common is the pitched roof of two slopes, meeting centrally in a ridge which is parallel to the eaves. Gables or pediments close the ends of the building. Of such a character are the roofs over all early temples and over sheds, warehouses, and other simple structures.

A square plan could be similarly covered with a ridge and gables, but the roof is more often "hipped." In this case the roof has four sloping planes meeting at a point and forming a pyramid. A rectangular building can be similarly covered if the difference in the length of the sides is not too great, but it is not altogether satisfactory. If the sides are much longer than the ends the roof may have hipped ends connected by a ridge. Of other simple geometrical figures the circular or semicircular building can be roofed with a cone or half cone, the polygonal or semi-polygonal structure with a pyramid or half-pyramid.

Two buildings intersecting may have :—

(1) Equal spans and level ridges

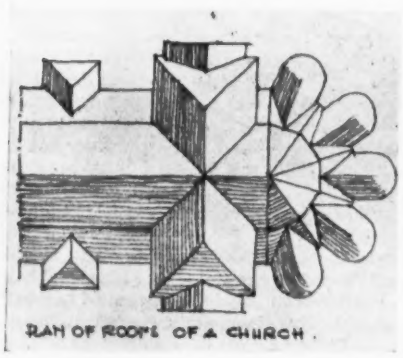
(2) Unequal spans, level ridges, and unequal slopes;

(3) Unequal spans, unequal ridges, and equal slopes.

The re-entering angle is called a valley. All external angles on plan will create hips, internal angles will create valleys. The form of the covering to the building is therefore obtained from the plan.

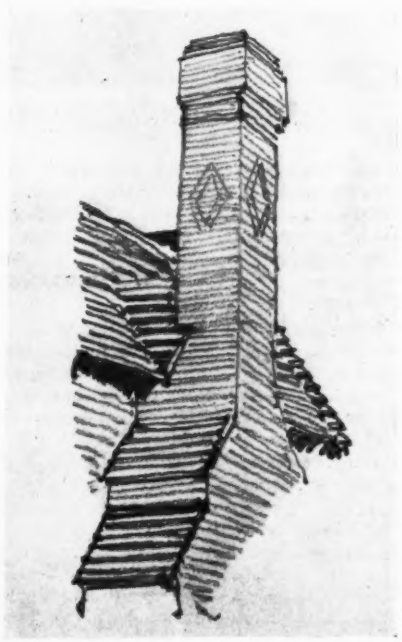
Intersections of slopes rising at the same angle will be at 45 deg. on plan; if the slopes vary this angle will vary. The alteration created in the roof plan is indicated upon the accompanying sketches, but great variety is possible and must be studied for each building.

Replace the slopes in previous examples by curves, and the diagrams will apply to curved roofs. Intersecting roofs of different radii are difficult to construct because hips and valleys will be curved on plan. On a circular plan a curved roof produces a cupola. In curved roofs the discharge of rainwater and snow is difficult on account of the flatness of the curve at the top. Alternative methods of overcoming this difficulty are indicated. Mansard roofs of simple form are shown in the diagrams, which also indicate two different methods of treating a square pavilion.



The problem of the construction of a roof is always that of the support of an inclined "partition" upon which the roof covering can be placed. In simple cases it consists of rafters at about 15 in. centres and battens or boarding. For spans over 18 ft. trusses are necessary unless cross walls are available upon which can be placed purlins and boarding, or purlins, rafters, and boarding as required by the nature of the covering.

Lean-to roofs, if properly fixed, have (contrary to generally accepted ideas) no thrust. If a tie is inserted it will be in compression, owing to the tendency of the rafters to rotate around the wall plate. The most economical span for wood purlins in purlin and rafter roofs is 12 ft. 6 in., and for rafters 8 ft. The aim of the designer must be to provide supports at these points. Hips and valleys of medium length can be carried by boards of small scantling; large spans need trusses.



Brick Chimney at Alford, Surrey.

Pitched roofs exert a thrust upon the containing walls unless adequate ties are provided. This means :—

(1) That in the design of trusses it is necessary to neutralise or suppress thrust;

(2) That all roof trusses should be unalterable in shape;

(3) The triangle should be the basis of truss design, since it is the only unalterable geometric figure.

Absence of thrust in roofing a polygon may be obtained by triangulating each truss and creating continuous bands at the level of each row of purlins.

The truss enables the designer to roof his building and free the enclosed area from supports. The design of the truss varies with the span type of roof. A few are illustrated in the diagrams. The details of construction belong to the study of construction, and not of design. In design it is, however, always necessary to remember the roof and be certain that the necessary support for slates, tiles, copper, or concrete can be provided.

In antiquity and the Middle Ages rainwater was discharged from the eaves of roofs, either uniformly throughout their length or at intervals by means of gargoyles. Such an arrangement would rarely be tolerated to-day. Even apart from inconvenience the danger to the base of the building and the foundations is sufficient to cause its condemnation. In Classic times most buildings had dripping eaves often with ante-fixas, as at the Parthenon. Others had small gutters and gargoyles, as at the Philippeum at Olympia and elsewhere. The openings in these cases were generally small and close together, and the cymatium containing them was constructed in terra-cotta.

To-day rainwater pipes are used and are a necessary part of roof construction. They must be more widely spaced than the ancient gargoyle, because :—

(1) They are more costly;

(2) They need drains;

(3) They are much in evidence and must be judiciously placed on the façade.

The channel or gutter connecting them becomes, therefore, of importance. It is usually of wood covered with lead or asphalte, or of copper, bronze, or iron.

Apart from the use of eaves gutters, which are normally unsuitable for monumental work, the gutter may be placed :—

(1) Over the cornice;

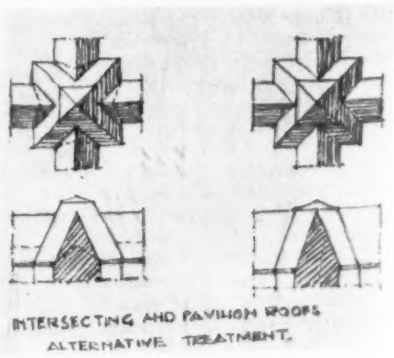
(2) On the slope of the roof;

(3) Behind a balustrade or parapet.

In England the gutter is rarely placed over the cornice, although this position has many practical advantages. If the gutter leaks the overflow of water leads to immediate remedy. The water overflowing falls on the ground below and does not enter the building, and the construction of the gutter is economical and accessible. As in all cases of box gutters their depth is governed by the fall of the gutter and the spacing of the rainwater pipes. Where widely projecting and visible eaves are employed the gutter may be placed in the slope of the roof, maintaining the effect of a plain roof surface, yet allowing for rainwater pipe connections without swan-necks and other unsightly expedients. The gutter placed behind a parapet provides the greatest facility and safety for workmen repairing the roof, and protects pedestrians from falling material.

This difficulty of the evacuation of roof water is one unknown in former ages. In France in the early Renaissance the absence of rainwater difficulties permitted the design of the magnificent dormer windows rising from the face of the main walls of such chateaux as Chambord and Fontainebleau or the Chateau de Maisons, a *motif* which was of necessity modified when every interruption of the roof required a fresh length of stack pipe.

Although roofs are necessities, they should be regarded also as elements of art The architects of Classic times do not appear to have appreciated the value of the roof from this point of view, and all ancient roofs are flat, or only of the minimum slope required for the particular method of covering employed. Possibly, however, climate was the governing factor, and the high mediæval roof was only made into a decorative element because it was first a constructive necessity. English architects tend to suppress the roof in monumental work in accordance with Italian precedent.



CHANNEL FROM THE COURT OF THE LOUVRE.

The French, perhaps more frank in design, frequently use steeper slopes with considerable effect. In the Middle Ages the roof dominated the silhouette of the building. S. Chapelle, in Paris, is a delightful example. There are innumerable others in our own cathedrals and churches.

The steeply-pitched roof, at first a void, was soon regarded as a possible addition to the habitable portion of a building, and the development of the dormer window began. The habitable roof reaches its greatest importance in Belgium, where sweeping slopes crown the cloth halls and civic buildings with three, and often four, stories of dormer windows.

The desire to utilise the roof to the utmost led to the conception of the mansard roof, having steep and flat slopes. It gives greater accommodation than the roof of one slope, but is more difficult and costly to construct, and when the lower portion becomes very steep has many practical disadvantages compared with the rectangular top story. Here, however, design steps in, and elasticity in proportion is rendered possible by the adjustment of the cornice line. The London Building Act recognises a slope, however steep, as a roof, and therefore permits the building owner to gain an extra story, or even two stories, above the 80 ft. limit of the height of the façade.

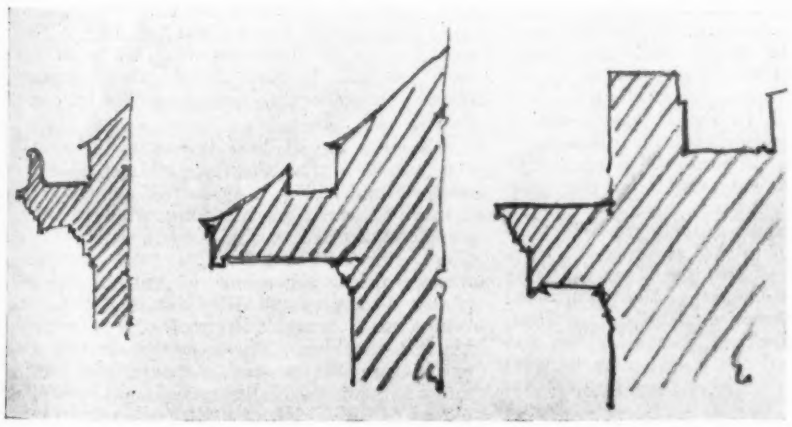
Flat roofs or flat slopes are always more dangerous than pitched roofs. They are menaced by dust in summer, leaves in autumn, snow in winter, rain and traffic at all times, and when used must take account of these dangers. In domestic work the roof is always an asset. Its drawback is its cost, and thus we get the efforts at utilisation mentioned above.

Apart from appearance and climate, the roof covering will affect the pitch of the roof, and therefore its design. Thus the architect must know the minimum permissible slopes of the principal covering material. Lead or asphalte, 5 deg.; corrugated iron, 15 deg.; glass, 17½ deg.; slates, 26½ deg. to 30 deg.; pantiles, 35 deg.; plain tiles, 45 deg.; thatch, 45 deg. to 60 deg.

The curved roof, with its dangerously flat top surface, has been referred to. It may cover a long rectangular building, as Palladio's Basilica, or a square pavilion, as at the Palais de Justice or the École Militaire, Paris. In the latter case it becomes a variation of the cupola. The cupola may be conic, hemispherical, or may cover a polygon. It is a valuable and beautiful *motif*. In Scotch baronial and early French Renaissance architecture there are numerous examples of conic roofs—in the Pantheon, St. Peter's (Rome), and St. Paul's (London), variations of the hemisphere. Early domes and cupolas are strictly constructional. There is no attempt at external effect in St. Sophia, yet it achieves much by its truth and sincerity. St. Peter's is not so much the dome of a church as the rallying point of papal Christianity—the spirit of his age interpreted by a master mind in architecture. It set a fashion, and was followed by St. Paul's and others where two or more skins aim at external as well as internal effect, in several cases achieving marked success.

The fleche is an architectural ornament pure and simple, except in so far as it indicates the position of a church. It is of limited application. Rightly used, it possesses great beauty. Ornament applied to roofs must not obscure their structural purpose or mar their outline. A roof is primarily required to discharge rainwater.

Hips and ridges, while needing care in their construction, are not sources of danger to the building. Defects in valleys and gutters may cause serious damage. The valley is always flatter in slope than the roof itself. Its use may be unavoidable, but should not be sought. The safest roof is that with ridge eaves and gables, than that with hips or hips and ridge. Valley gutters between roofs are very undesirable. Gutters behind parapet walls are also dangerous. The simplest and cheapest gutter is the eaves gutter. It may get choked, cracked, or pushed out of position, but in each case leaking water will be immediately observed and the defect remedied. In the meantime the structure suffers no harm. The gutter behind a parapet or in the centre of a building may leak and do serious damage before its defects are known.



Three Methods of Forming the Gutter.

The gutter placed upon a cornice can be a great architectural feature, as at the Court of the Louvre, the Library of S. Genieve, or the Ecole des Beaux Arts. When in this position, however, it does not protect pedestrians from falling slates or loose roofing material, nor does it contribute to the safety of workmen, as does the gutter behind a parapet. The depth of the gutter must allow adequate flushing at its highest point. Colonnaded fronts require special provision for the discharge of rainwater. Pipes sunk in chases need special care in jointing and construction. Built-in pipes should never be countenanced. Access to roofs must not be forgotten. The need for passageways is apt to be overlooked, especially in glass roofs.

GUTTER FROM THE LIBRARY OF ST GENIEVE PARIS.

Dormer windows, either in domestic or monumental buildings, are often of considerable decorative value. Generally, the dormer has a pitched roof and a gable end. It may, however, have hipped ends or be covered by a flat. Continuous dormers and attics are shown in the diagrams, and a detail of a window from Fontainebleau.

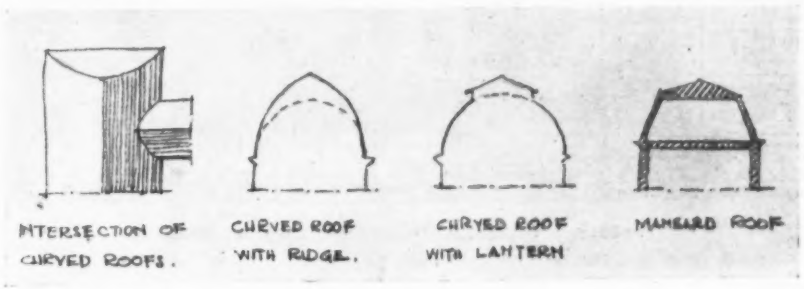
Chimney-stacks must be arranged on plan so that they pass through the roof in a position which suits the architectural composition. They are most difficult to deal with when rising at the eaves as the top must at least reach the level of the ridge. In modern building there is an increasing tendency to eliminate chimney-stacks because of the use of central heating. A few stacks well placed always look better than a large number of small stacks, and in all cases offer the least obstruction to rainwater if they have their smallest dimension normal to the slope of the roof.

Gables and pediments, while strictly belonging to the wall, are actually elements in the design of the roof, and enter into many architectural compositions. The terms are really synonymous, but the former is generally applied to steeply-pitched and the latter to flat-pitched roofs. The beauty of the pediment and its unifying effect has caused architects of various periods to use it as a purely ornamental feature, as in the central pavilions of the Place Vendôme, Paris. The strong sloping line of the pediment or gable requires an architectural stop, and so we get the Classic antefix, and a Gothic feature in the same position treated in a variety of ways. In Flanders and sometimes in England the corbie, or crow-step, gable is used.

Thus is outlined the study of the roof. It is complicated even in its simplest form. It demands a plan simple in outline and easily roofable. In design the roof should be borne in mind from the commencement, and as the scheme develops its possible decoration will be settled. Its elements are:—

(1) Ridges, hips, and valleys;
(2) Dormer windows and roof intersections;
(3) Gutters;
(4) Rainwater pipes;
(5) Access passageways and other accessories.

[**** This series is finished for the present, but other articles will appear from time to time.]



INTERSECTION OF CURVED ROOFS. CURVED ROOF WITH RIDGE. CURVED ROOF WITH LANTERN MANSARD ROOF

THE GRAND THEATRE, MOSCOW.

BY CYRIL G. E. BUNT.

IN Western Europe the evolution of the playhouse has been a slow process. The travelling stage of the mediæval mystery-play, the earliest adaptation in non-classic times of definite structural environment to play production, and the spacious and elegant theatres of London, Paris, and other great cities are as the poles apart. Between these, the Alpha and Omega of theatre construction, an infinite series of gradual improvements has stretched across the centuries.

But in Russia there has been no like process of slow growth, and the art of theatre construction had no infancy. It arrived almost, one might say, in a mature state as a result of that process of Westernisation inaugurated by Peter the Great. It was not until his time that the land passed from a state of semi-oriental barbarism into one of transition, during which it absorbed many of the refinements of Western civilisation. Thus it was quite late in its history that Russia reached to an appreciation of the arts pertaining to the theatre.

Peter the Great established his first theatre in Moscow a short while before the centre of culture and secular life was transferred from there to the banks of the Neva. When Peterburg was founded the whole fashionable world followed Peter and the Tsarevna Natalia thither, and the Imperial Theatre was transferred to Peterburg likewise. But the theatre in those days was really a Court establishment, and it was not until the reign of the enlightened Elizabeth Petrovna that the history of the Moscow theatre really begins.

In the year 1759 Moscow's first theatre was built under the direction of Sumarokov, in imitation of one he had constructed in Peterburg in 1756. These early theatres, it is not too much to say, compared very favourably, both in construction and in convenience, with those of the rest of Europe at the time. In consequence of the powerful support of the nobles, both in Peterburg and Moscow, and the political status (if one may so term it) of these theatres, every encouragement was accorded to them. For they were the property of the State, and their mission was to amuse, and incidentally to educate, the Boyars, by the presentation of the world's masterpieces.

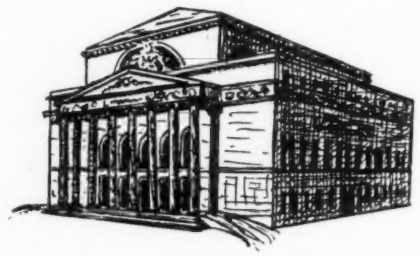
During the reign of Catherine II Sumarokov's building was replaced by another, built, it is of interest to note, by the British architect, George Maddox. This architect, who in many ways was in advance of his time, was a clever exponent of the Greek tradition. Born in Monmouth, the son of a builder, he was for some time assistant to Soane, and afterwards was connected with the Pantheon in Oxford-street. An obituary notice of him in the *Civil Engineer and Architects' Journal*, although it makes no mention of his visit to Russia, has one passage worth quotation. The writer says: "A most promising prospect that was opening itself to him was suddenly cut off by the loss of a patron in the Duke of Cumberland, brother of George III, whose death caused the project of building an opera house in Leicester-square to be abandoned. . . . The edifice was to have been upon a scale then, and even now (*i.e.*, in 1844), unprecedented in the Metropolis; Grecian Ionic in style, with a magnificent portico, whose columns were to have been about 60 ft. high. What became of the design for it we are unable to say, but it does not appear to have been preserved."

Henry Frederick Duke of Cumberland died September 18, 1790, and the theatre in Moscow was undoubtedly built before 1796, when Catherine died. In 1796 Maddox was evidently again in London, for he exhibited a design for a villa at the Academy. What is more likely than that, disappointed in the Leicester-square project, rather than let his design lie neglected, he should have taken it to Moscow, and thus secured the commission for rebuilding the Imperial Theatre there? Of course, there is no proof that the same design was used, but the brief description given by his biographer corresponds well with the building as it stood as late as 1853. Although, as we shall see, it was several times rebuilt there is no doubt that the restorations were based upon the original building. Thus, if our surmise be correct, London's loss was Moscow's gain, and the question as to what became of the design is answered after over seventy years.

In either 1805 or 1806 the Maddox theatre was burnt, and to take its place a temporary building of wood was constructed by Rossi (see Fig. 1), who later did much good work in Peterburg, including the Alexandra Theatre (1832) and the Michael Theatre (1835). Moscow's wooden theatre was one of his early works, finished either in 1808 or 1810, and was destroyed in the fateful year of 1812, when the Russians burnt the Kitaï-gorod at the approach of Napoleon.

For the ensuing twelve years the Imperial Theatre was housed in private quarters, which, although good, could not be considered as permanently suitable. Therefore it was decided to rebuild the theatre on the Petrovski Ploshchad. At least two architects prepared designs for this work, Abram Melnikov and Andrei Mikhailov, well-known native architects of the time. The designs were submitted in 1821, and Mikhailov's project was chosen. Generally this reconstruction is ascribed to a man named Bové, or Beauvais, who is also sometimes credited with the restoration of the Nikolski tower in the Kreml (actually the work of Rossi). He was probably at most master builder or foreman of the works.

Mikhailov's building was to all intents and purposes a reconstruction of the theatre of Maddox. The materials of the older building were utilised in the new. Opened to the public in 1824, it subsisted until 1837, in which year it was again destroyed by fire.



From a print 1824. MIKHAILOV'S RECONSTRUCTION

FIG. 2.

In appearance this edifice, while, as we have said, a reconstruction of the earlier one, was not at all unlike the present building. The most noticeable difference was in the second story, as will be seen in the rough sketch from a contemporary print given here for comparison (Fig. 2).

After the fire of 1837 it was again reconstructed, this time by the architect Nikitin, but in March, 1853, it again fell a prey to the flames. Fanned by a strong wind the fire completely gutted the building in a very short time. It is said that during the fire a peasant made an intrepid rescue of an unfortunate person who, surrounded by flames, had taken refuge on a corner of the roof. In order that his feet should not slip upon the slope of the entablature the peasant removed his boots, and accomplished his courageous act amid the cheers of the crowd. But the police, who had evidently ordered him to desist, in order to assert the dignity of the law appropriated his boots. Thus ended the history of the old Imperial Theatre. It was of noble proportions and the third largest at that time in Europe, only being surpassed by the San Carlo at Naples and the Scala at Milan.

The present Grand Theatre, a building of which Moscow is rightly proud, was the result of the wish of the Emperor Nicholas I to build a theatre worthy of the great town of Moscow. It is raised on the same site as the older building dominating and giving its name to the Teatral'naya Ploshchad—the old Petrovski replanned and renamed, and one of the largest squares in Moscow. Nicholas appointed a committee of three to examine and report on the reconstruction of the ruined building. These men were Kavos, chief architect of the Imperial Theatres (who also rebuilt the Michael Theatre, Peterburg (1859) and the Hippodrome, Tsarkoe Selo); Ton, the architect of the Great Kreml Palace; and Nikitin, who was Conservitor of the Imperial Moscow Theatre. Upon examination of the ruins it was found that certain radical defects in the older design made it desirable to design an entirely new building. The chief defects may be summarised as follows: The curve of the roof of the auditorium was not acoustically satisfactory. The curve of the sides of the auditorium was so pronounced that it interfered with the view from some of the boxes, and also interrupted and deflected the tone

ROSSI'S WOODEN THEATRE BURNT 1812.

FIG. 1.

from the stage. The corridors to the boxes were narrow, and so ill-lighted that they were comparable to catacombs. The boxes themselves were small and shallow. The Imperial box had no vestibule—in fact, it was rather a part of the corridor than an Imperial box. The approach to the parterre was inconvenient and the stairways very narrow, particularly those leading to the gallery. The offices of the directorate were in the basement—a death-trap in case of a fire—and parts of the building had been used by the intelligence and police departments.

Kavos, in submitting his new design to the Emperor for approval, gave exhaustive details of these and other defects and of his proposed improvements. Nicholas I approved the design and sanctioned the necessary expenditure. But the actual commencement of the work was delayed, and the monarch did not live to see the new theatre. He died in February, 1855 (March 2, New Style), and was succeeded by Alexander II. The new Tsar shortly afterwards, during a sojourn in Moscow. noticed the ruins, and the project was revived. Meanwhile Kavos had improved upon his original plans, in the light of experience gained in studying the great theatres of Europe, and in May, 1855, the work of demolishing the ruins and rebuilding was started, and continued during the following winter.

At the time of its completion—it took close on sixteen months to build—the Tsar was in Moscow for his coronation, and on August 20 (September 1, New Style) it was opened. The Imperial family were present on the occasion, and the opera produced was "The Puritan." Besides the rebuilding of the theatre the scheme included the replanning of the old Petrovski Place. Under its new name —Teatral'naya Ploshchad—it is now known as one of the finest squares in Moscow. It is adorned with fountains, flower-beds, and sculptures, the latter, by Vitali, represent Music, Light, and Classic Poetry.

The appearance of this undoubtedly fine building, standing an isolated block on the north side of the great square, is noble and impressive. Built in the Renaissance style, influenced, no doubt, by the best French and Italian taste of the period, it is certainly a building of which any city might justly be proud. Much of its refinement is due to the elegant octastyle portico of Ionic columns over 50 ft. in height. They rest upon a low flight of broad steps, and support a pediment adorned with winged figures in relief, surmounted by a colossal quadriga 21 ft. in height representing Phœbus Apollo in the Sun-chariot. The second pediment, forming the gable end of the upper story, although perhaps not in quite the best architectural taste, is, nevertheless, a fine decorative feature, and does not seriously detract from the beauty of the building. It may be considered an instance of that tendency to over-elaboration in matters of detail which is almost a characteristic of native Russian work. The number of windows and the sound use of decorative pilasters on either side of the portico disguises to an extent the enormous proportions of the structure, while the pilasters lend an apparent strength and solidity to the order story.

The interior is no less striking than the exterior. In the words of Th. Gautier, "everything in it is grandiose, monumental, and sumptuous." The auditorium is impressive in its dimensions, and is decorated throughout in white and gold in the Renaissance taste, with just a hint of native Russian element suggestive of the Byzantine. There are five tiers of boxes, which, with their red plush hangings, give an impression of rich grandeur scarcely to be excelled. The seating accommodation is said to be for close on four thousand persons, but this is probably an over-estimate, for there is no cramping and economy of room such as we are compelled to in our small theatres. The greater part of each balcony is occupied by boxes, of which there are 125, each capable of seating eight people in comfort. On the first tier there are sixteen, eight on either side, with an amphitheatre between them completing the gigantic horseshoe. Immediately above this is the *bel-étage*, or dress circle, completely occupied by its thirty boxes, as also is the circle next above. The Imperial State box is at this level, and being in height equal to the two rows, it has a pleasing effect in breaking their too-symmetrical appearance. On the fourth and fifth balconies there are twenty boxes each, and each has amphitheatre seating between. Above all these is the gallery, so far up that from it the actors must appear scarcely larger than flies. The parterre is furnished with seventeen rows of fauteuils, with ample room for each spectator and roomy gangways at the sides and down the middle.

It was intended to make the whole of the structure fireproof by fashioning the parapets and the ceiling of iron, but for reasons acoustic the architect decided on the use of wood. The ceiling is decorated elaborately in plaster, which, however, is intermittent, in order to preserve the requisite quality of resonance.

On either side of the noble proscenium opening (which is 58 ft. high and about seventy wide) are the proscenium boxes. Three out of the four on the left are the private boxes of the Tsar and the Royal Family, to which there is a private stairway and adjoining which are withdrawing rooms for the Imperial use. These, like the State box in the centre of the grand circle, are most elaborately decorated and upholstered. On the right of the proscenium are the boxes reserved for the Ministers and other Court functionaries. The fourth box on both sides is set apart for the use of the Press.

The great proscenium curtain is of much merit. It is the work of the Venetian painter, Cosroe Dusi, the man who painted the fine curtains at the Fenice and San Samuele Theatres in Venice. He was at the time (1855-6) Professor of Painting at the Academy of Fine Arts, Petersburg. The subject, proposed to him by the Tsar, is an episode in the stirring time (1612) when Moscow was liberated from the power of Poland by Minin and Pozharski.

The theatre, whose history we have now glanced at, is devoted exclusively to the opera and ballet. It may justly claim a place in the front rank of the world's theatres, and this not only on its architectural merits. For upon its well-appointed stage have been produced those wonderful hypnotising ballets of which we in London have certainly not as yet seen the best. By the aid of the elaborate stage machinery, designed by Waltz in collaboration with Kavos, they have here been staged in all their original magnificence. On its boards have trodden the great Nijinski, the wonderful Pavlova, Karsavina, and Federova. There they have held the vast audience spellbound with those marvellous effects—those orgies of haunting colour and cleverness—which we in England know best from the art of Léon Bakst.

Later on, in happier times, the British traveller will go thither to enjoy the Russian ballet in its native atmosphere, as he goes to La Scala for Italian opera, as he used to go to Bayreuth to hear "The Ring."

Fig. 3.—Grand Theatre, Moscow, 1855–6.

EXHIBITION NOTES.

THE LEICESTER GALLERIES.

Anthony Raine-Barber at his best is very good indeed, and some of his best is to be seen amongst over fifty water-colours at the Leicester Galleries. His lowest toned colour generally reaches a high level of quality, as in his grey-green drawing of "Durham" (31), the "La Bouille" (16), and "The Three Fishermen" (1). There is a placidity and breadth in these drawings, and those of the Down landscapes which illustrate the peaceful charm of the real country; the liquid transparency in the Alfriston drawing (52) and the "Quayside Scenes" (26) is delightful. There is a brilliant vigour in the "Cuckmere River" (28) and "The Ouse, Hemingford" (29) which does not always go with such good quality of colour; perhaps the elimination of half the drawings exhibited would have given the artist a stronger appeal. Some of the etchings are telling in subject and execution.

THE WALKER GALLERIES.

It cannot be said that there is a lack of variety in the exhibitions at Walker's Galleries. The water-colour drawings of India by Mrs. Lucy Pelling Sultan Ahmad are still on view, and may be counted amongst the recent successes, for the artist's sense of colour-value and pattern make a strong appeal to anyone with a feeling for decorative effect. It is seldom we find a lady artist so well equipped in this direction. There are several charming drawings in the collection. The pastels of flowers and portraits by Miss Almeira Cortlandt Trotter show a clever handling of the medium; the portraits are, perhaps, less successful than some of the flower panels. A collection of pictures by G. P. Jacombe-Hood, which appear to have come from half the world over, have a very varied interest, for the versatility of the artist is remarkable. Some of his landscapes are very sweet in colour, and marked by some real distinction. Many of the subjects, such as the admirable portrait of General Bruce, suggest very interesting associations. The name of Jacombe-Hood has been a familiar one in the world of artists for a long time, and it is pleasant to see such durability of effort and quality.

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ILLUSTRATIONS.

New Medical School, Singapore.

This building, which will be erected at the junction of roads and on a commanding position, is to house King Edward VII's Medical School, which is an earnest endeavour to extend medical training so necessary in the East. The building will be of reinforced concrete throughout. Particular care has been taken in planning the various departments to obtain the utmost light and ventilation so necessary in a building of this description. The design, which is exhibited at this year's R.A. Exhibition, is by Major P. H. Keys, F.R.I.B.A.

Newport (Essex) Free Grammar School.

This school dates back to the middle of the sixteenth century, and was partly rebuilt by Eden Nesfield in the middle of the last century. The school has lately been enlarged to meet the developments that have taken place of late.

A free treatment of the early eighteenth century has been used in this new work as representing the natural outcome of the earlier work, while it adapts itself more freely to this type of building. The design has been kept quite simple, relying chiefly upon the careful use of materials to obtain the effect required.

The central feature in the photograph shows the Memorial Hall erected in memory of the old boys who gave their lives in the war, which has been designed to stand out boldly in front of the general line of the school building. A feature has been made of the central window flanked by brick piers supporting a stone pediment in which is placed the coat of arms finished with the school colours; this gives relief to the general simplicity of the work.

The extensions presented many difficulties, as the work consisted of adapting the existing building, increasing accommodation by adding new class-rooms built over old class-rooms, enlarging the physics laboratory by bringing this forward to the general line of the front, and by enlarging a class-room so as to form the memorial hall. The architects have endeavoured to gather these various units and bring them together into a more uniform and balanced scheme. The future extensions have been treated so as to form a complete design when carried out. The plan explains the form in which these additions have been made. The cost of the work was approximately £6,000.

The contractor was Mr. C. Kerridge, Junr., of Cambridge. The bricks were supplied by Messrs. Ames & Finnis, London; ironwork by Albany Forge, Wainwright & Waring, Ltd. The laboratory fittings were made by the contractor from the architects' details.

The architects were Messrs. Kieffer & Fleming, 83, Pall Mall, London, S.W.1.

Charterhouse School War Memorial.

A new chapel for the Charterhouse School, Godalming, is to be erected as a memorial to the 667 Carthusians who fell in the war. Designed by Mr. G. Gilbert Scott, R.A., the memorial chapel will occupy a site on the edge of the hill on which the school stands. The names of the fallen will be recorded inside the Chapel, and the inner wall of each of the four porches will bear an inscription setting forth the origin of the building.

Students' Work.

On pp. 870 and 871 we illustrate some work of students at the School of Architecture, Liverpool, of which Professor C. H. Reilly, F.R.I.B.A., is the Head. The designs are all by second-year students: Messrs. F. N. Astbury, C. A. Minoprio, H. A. Peters, and H. Thearle.

Broad Oak End, Hertfordshire.

Mr. H. S. Goodhart-Rendel, F.R.I.B.A., is the architect for the alteration and the new wing at Broad Oak End, Hertfordshire.

House at Dorking.

The house at Dorking is by Mr. A. J. Hardwick, F.R.I.B.A.

MEETINGS.

SATURDAY, *June* 10.

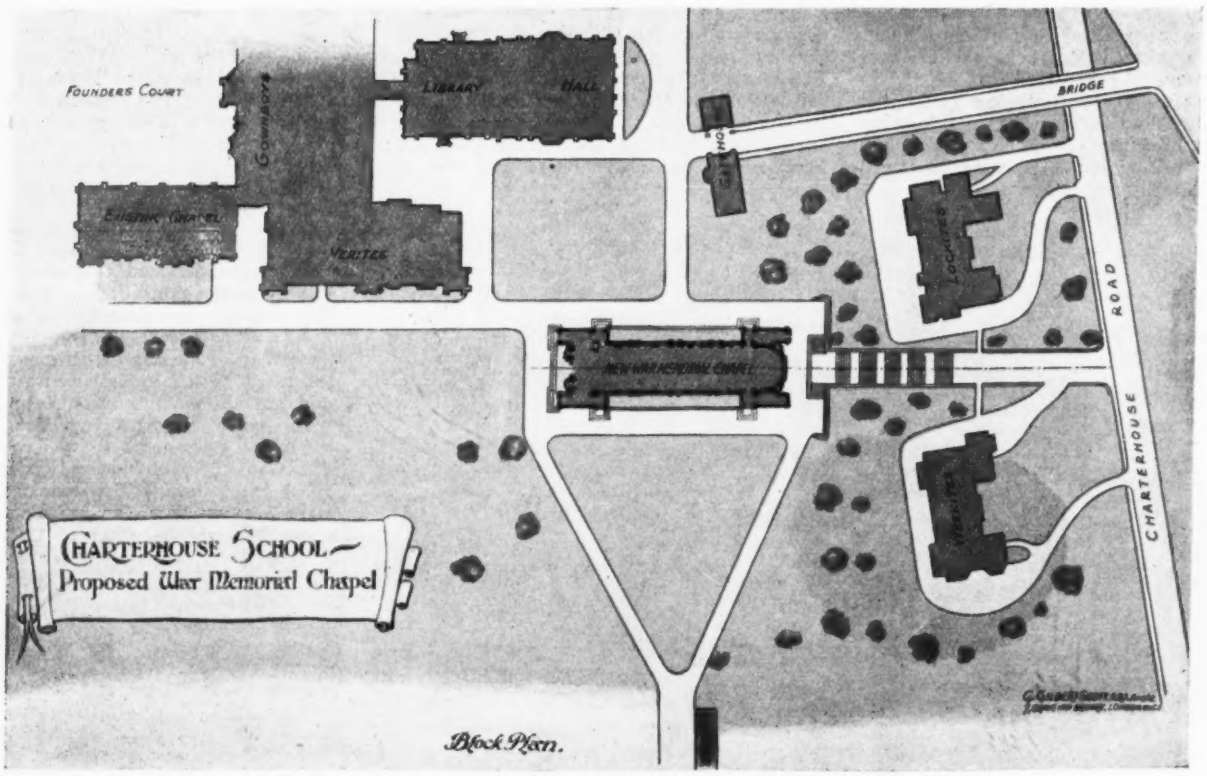
Edinburgh Architectural Association.—Visit to the premises of Messrs. Wallace, Scott & Co., Ltd., at Cathcart, Glasgow.

THURSDAY, *June* 15.

Royal Institute of British Architects.—Professor C. H. Reilly on "Some London Streets and their Recent Buildings." At 9, Conduit-street, W. 1. 5 p.m.

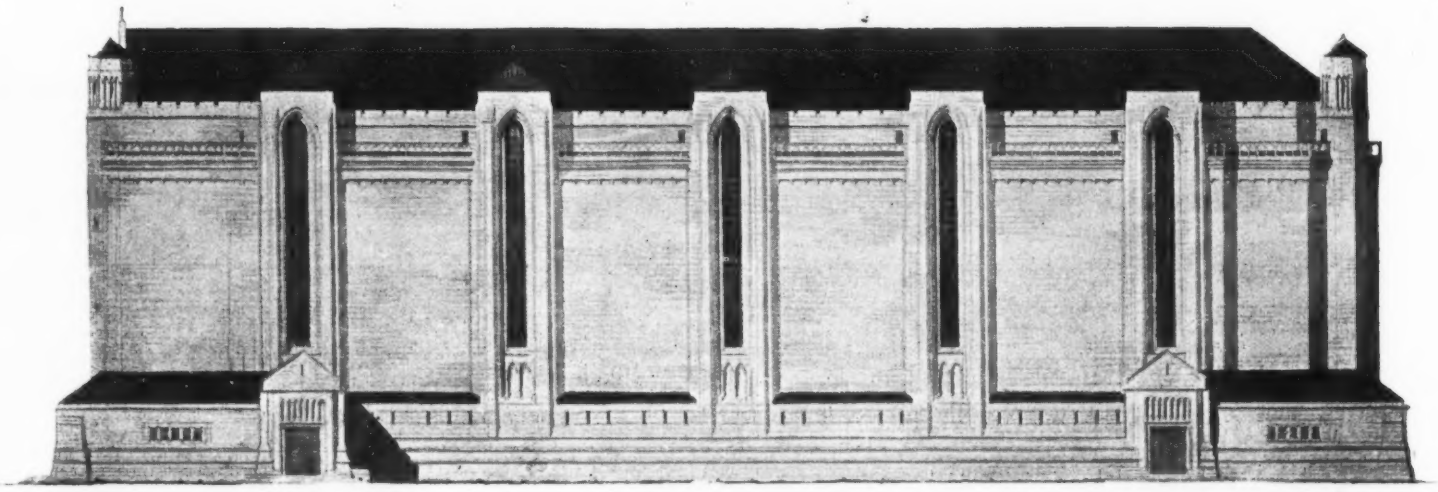
National Housing.

The National Housing and Town Planning Council has decided to ask the Prime Minister, the Chancellor of the Exchequer, the Minister of Health, and the Secretary for Scotland, to receive a deputation representative of the whole of Great Britain appointed for the purpose of submitting the case in favour of entering upon the second constructive stage of a great national housing endeavour. A point on which special stress will be laid relates to the impossibility that the necessary houses will be provided by private enterprise. Concerning the probability that prices will fall still further and pre-war standards of cost ultimately reached, stress will also be laid on the fact that the cost of living will be the dominant and determining factor. If, therefore, the cost of living tends to become stable somewhere between 70 per cent. and 90 per cent. above pre-war standards it will be futile to hope that the cost of building will fall appreciably below the prices quoted in recent weeks. In this relation the conclusion which will be definitely put forward as representing the considered views of housing reformers will be that the houses built by private enterprise in the next five years will be beyond the reach of the great mass of the working classes of this country.



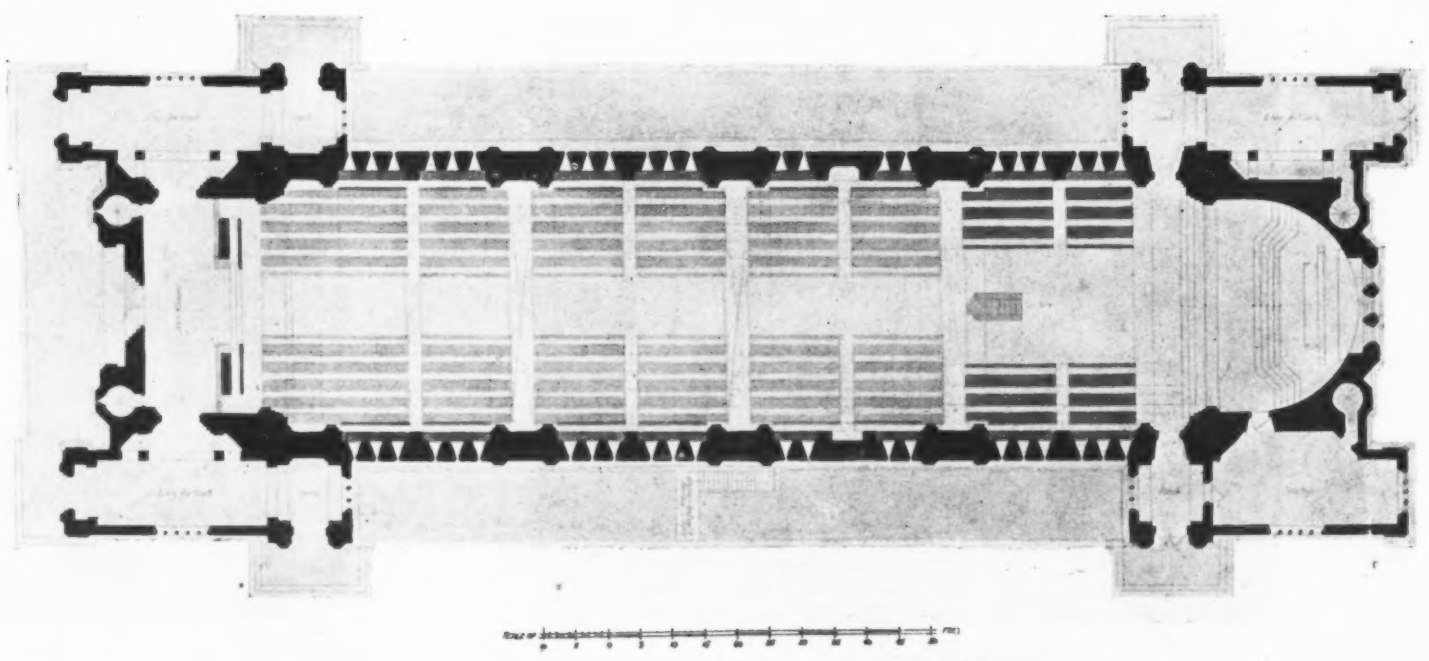
MR. G. GILBERT SCOTT, R.A., Architect.

WEST ELEVATION.

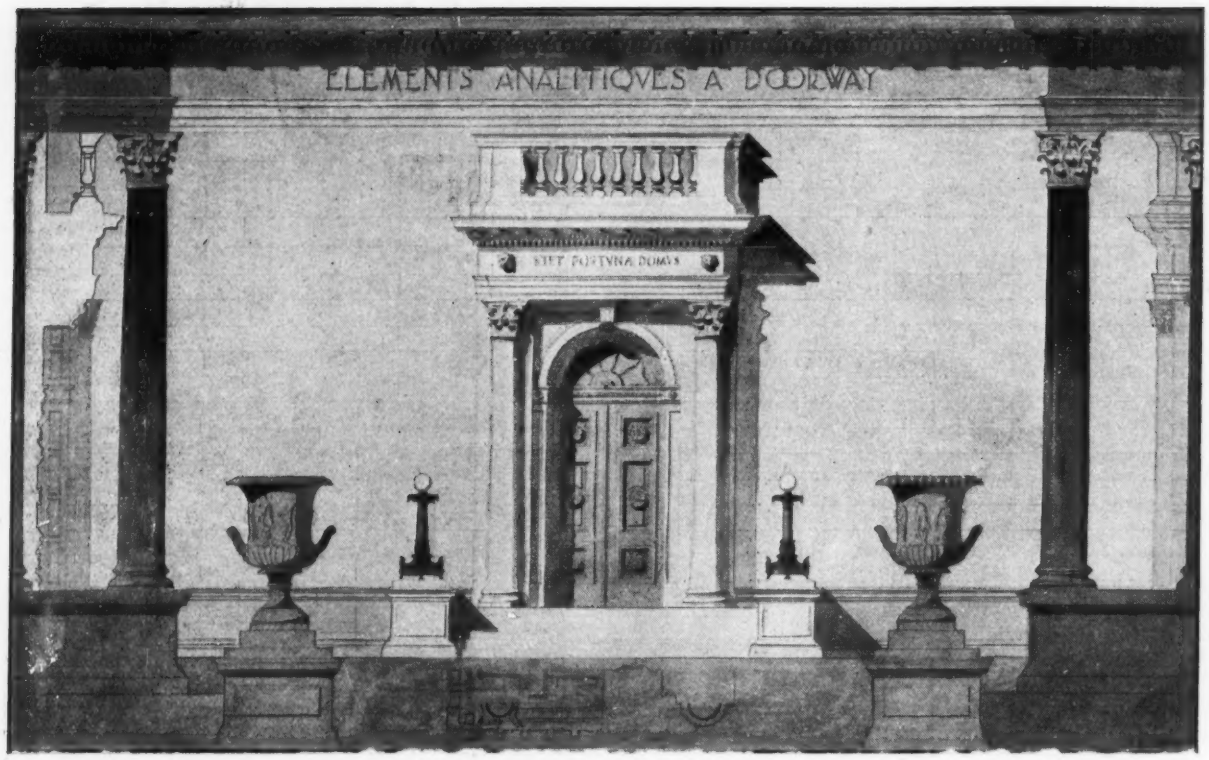


SOUTH ELEVATION.

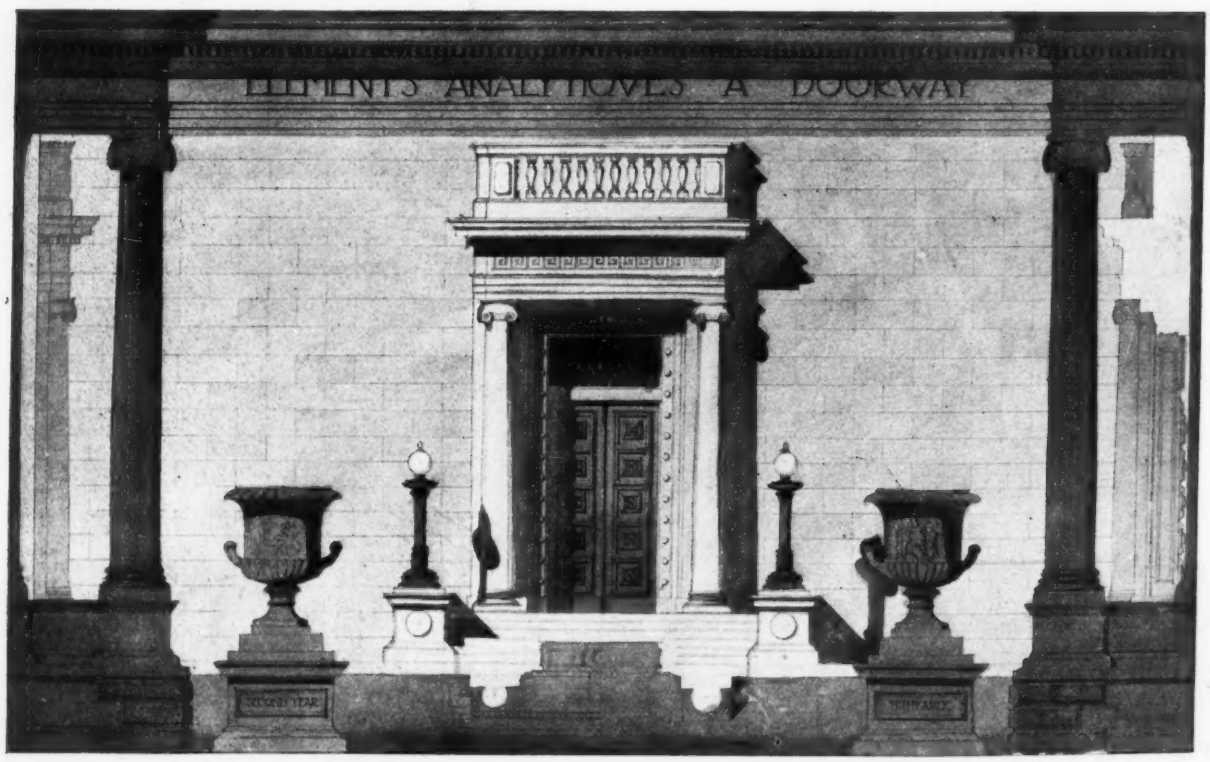
CHARTERHOUSE SCHOOL—
Proposed War Memorial Chapel



MR. G. GILBERT SCOTT, R.A., Architect

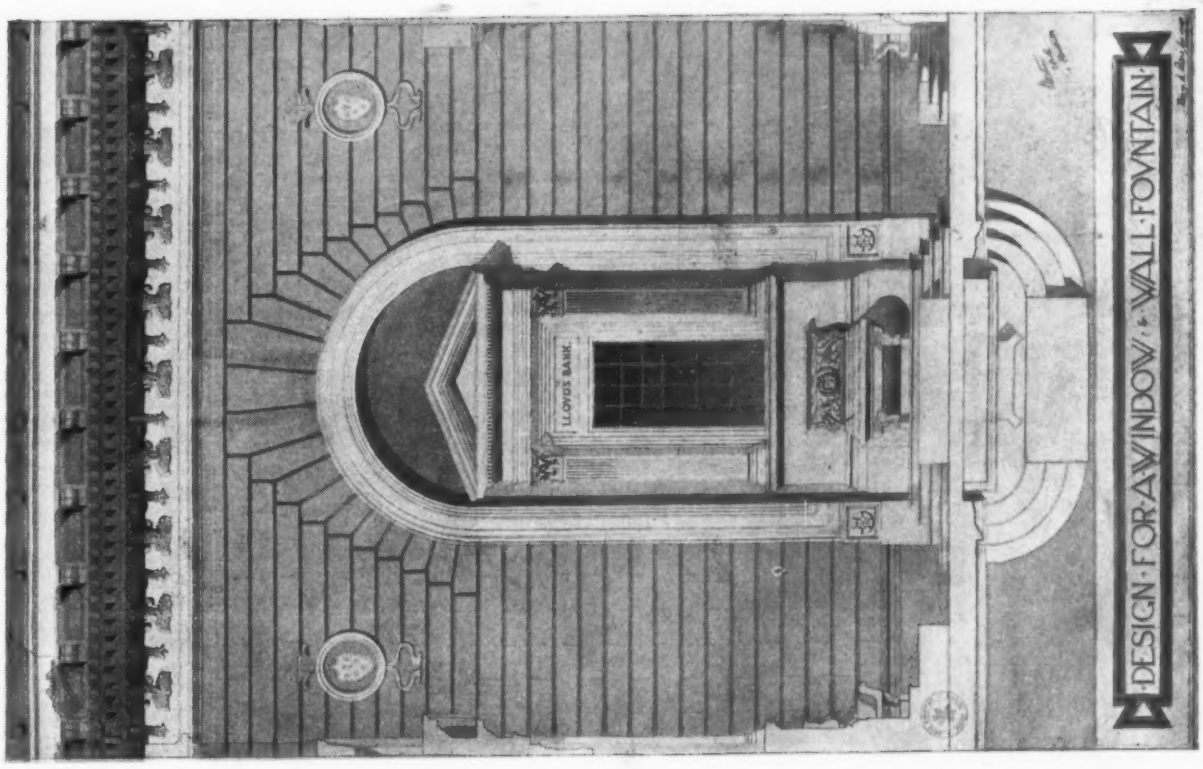


Design by MR. C. A. MINOPRIO.

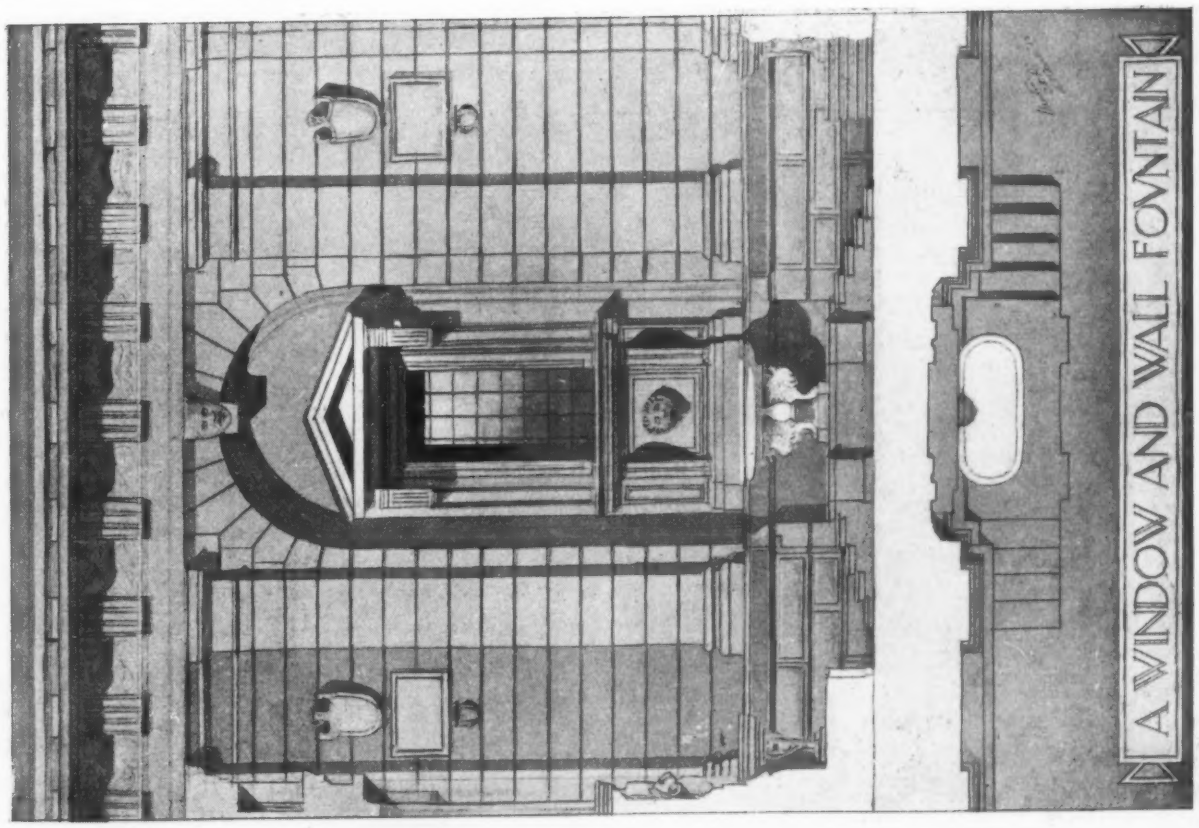


Design by MR. H. THEARLE.

Liverpool University School of Architecture Second-Year Students' Work.

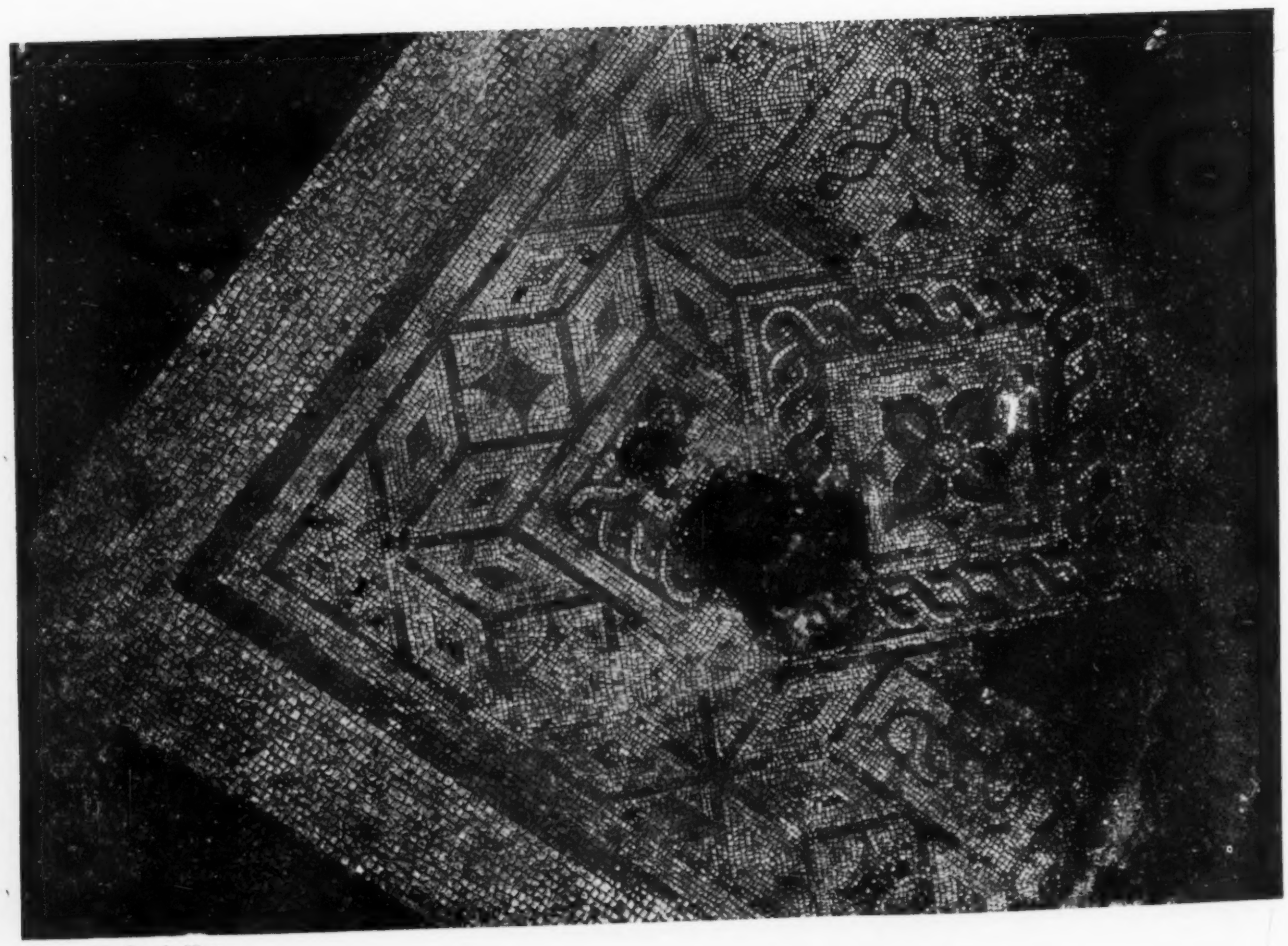


Design by Mr. H. A. PETERS.



Design by Mr. F. ASTBURY.

Liverpool University School of Architecture Second-Year Students' Work.



Photos: W. Dennis Moss.

Roman-British Mosaic Pavements at Cirencester. *See p.* 873.)

ROMAN-BRITISH MOSAIC PAVEMENTS AT CIRENCESTER.

BY ST. CLAIR BADDELEY.

LATE in February last, when sinking a small well adjacent to a bungalow being then constructed in the Victoria-road, or east end of Cirencester, for Mr. Ovens (jnr.), the workmen met with mosaic pavement at less than four feet from the garden surface. By courtesy of the owners and of the contractors, Messrs. Cosslett & Lea, I was invited to inspect it, and was led to the conjecture that the pavement probably belongs to a corridor to the court of a superior second-century house. The white pavement, carrying alternate black and white octagon medallions, and having a simple broad border of brilliant brick-red *tesseræ*, was found to extend several feet, and it then gave out; but it was now seen to be limited by the lower courses of a good wall. Struck by the apparent confirmation of the corridor hypothesis, it now became an object to get to work beyond that wall, or north-east of it. As the proprietors were quite willing, and we were to be limited only by the somewhat too-vigorously growing apple-trees (which were, also, rather too numerous to please archæological aspirations), the spade-work quickly showed a fresh wall running off at right angles to the first, and we at once passed into the south-western angle of a large room having a triple-bordered mosaic—a sure sign of the importance of the chamber. As shown on page 872, this consists of a simple white and red exterior outermost border, followed by a broad and bold *guilloche* composed of red, white and blue *tesseræ*. Then comes an innermost border of the Greek "*key*." From this sprang, towards the inner area, or field, of the floor a series of small semi-circles of key-border and *guilloche*, inverting their outer order; and in the centre of the room, until stopped off by an apple-tree, it was made certain that this had been occupied by a complete circular medallion, which may, or may not, have contained a figure, but which was framed similarly by the above classic borders. The refreshing element here (and it was evidenced in every other room opened) was the beautiful technique, both of the *tesseræ* and their laying down. In addition, we found (what we have not noticed hitherto in mosaics of this district) the use of two distinct blues, a light and a dark, and also a deep and distinct purple. Further, the red-tile *tesseræ* were of brighter tint than is usually found. The general level of workmanship is superior to that at Chedworth Villa. Passing over the wall (about 1 ft. 4 in. high), we now met with two other adjoining rooms, each of these having a good pavement of like quality, though of a still more strictly geometrical design. The probabilities favour the idea that the finest mosaic floor hereabouts has not yet been met with.

In addition to their interesting appearances, the soil above these floors was observed to be full of fallen R.B. tiles, upon which we were inclined to look expectantly, and we were not disappointed. For, when these became drawn out of the débris, there appeared every known type of Cirencester lettered brick-stamp, and the one (in especial) which I had hoped for, the long-supposed (and totally misinterpreted) "I H S" of the Bathurst and the Cripps Museums, which was made to figure in the Victoria County History of Gloucestershire (Vol. 2) as evidence of early Christianity here. Several examples of it now came to hand, and not imperfect ones like those above mentioned, but showing full and plainly "L H S," no doubt merely representing the mark of a particular licensed local brickmaker of the second or third century. We have consequently now been able to give duplicates of these examples to the museum at Cheltenham and to the County Museum at Gloucester.

That these rooms represent a first-class R.B. town house of the second century, which covered the two or three neighbouring plots of garden and modern houses, goes without saying. It is very much to be regretted that these cannot be further and fully explored, and thereafter kept as a show Cirencester treasure, for no more practically placed capital examples are to be found; moreover, they represent a commercial town, the boundaries of which enclosed about 240 acres, or, roughly speaking, six times the size of R.B. Glevum (Gloucester).

Northamptonshire Road Schemes.

An important scheme of road repair has been adopted by the Northamptonshire County Council, which has decided to reconstruct and resurface 15½ miles of the London-Holyhead main road, from Old Stratford to Weedon, at a total estimated cost of £56,000, subject to a grant of 50 per cent. from the Ministry of Transport. The Council has also adopted the following schemes towards the cost of which the Ministry of Transport has agreed to contribute 50 per cent., and District Councils, in the case of the construction of footpaths, 25 per cent:—(*a*) Construction of footpaths on sections of the Wellingborough-Higham Ferrers, the Wellingborough-Newport Pagnell, the Wellingborough-Kettering, and the Northampton-Wellingborough main roads in the Wellingborough rural area, at an estimated cost of £4,455. (*b*) The construction of a footpath on a section of the London-Leicester main road in the Irthlingborough urban area, at an estimated cost of £132. (*c*) Widening of Wellingborough-Newport Pagnell main road near Wollaston, £300. The County Council has also consented to a scheme for the widening and improvement of the Daventry-Coventry main road within the borough of Daventry and the reconstruction of the footpath alongside at an estimated cost of £2,113. There will also be carried out schemes of road widenings and reconstruction of footways by the Kettering Urban District Council at an estimated cost of £4,307.

Photos: W. Dennis Moss.

Roman-British Mosaic Pavements at Cirencester.

ARCHITECTURE AT THE PARIS SALON.

THE *Section d'Architecture* at the Salon des Artistes Français at the Grand Palais des Champs Elysées is not marked by any one work of exceptional interest. This is also true of the architecture at the Salon of the Société Nationale des Beaux Arts, where the work sent in declines each year in interest, and does not call for any comment. At the Artistes Français an inspection of the architectural rooms reveals much that is of interest, such as the excellent show of modern British work organised by the Franco-British Union of Architects.

There is a marked revulsion from the showy and extravagant "rendering" which was at one time so much in evidence, and a return to the principles of sound and honest draughtsmanship, an increasing study of old work, and a larger number of water-colours and sketches. But, in spite of all this, it must be admitted that the general public shows no great interest in this section of the Salon, and the architectural galleries at the Grand Palais are as empty as the smaller room at the Royal Academy.

The reason for this lack of interest was, we think, explained by Monsieur Paul Léon, the Directeur des Beaux Arts, in the course of a speech at the dinner of the Franco-British Union. M. Léon, referring to his official visit to the Salon earlier in the day, said: "Architecture, which should command and dominate the other arts, here takes the position of the 'poor relation.' Its plans and sections, understood by the *élite*, discourage the ordinary visitor. It is much to be desired, no matter what the practical difficulties may be, that a more general use should be made of models, or even of sketch models, which would make your ideas more living and interesting to the general public." This opinion is, we think, a sound one, and we hope it will receive consideration by those who seek to stimulate and develop public interest in good architecture. We believe this public interest exists and that it is instinctively based on the fundamental principle of architectural composition—the art of designing solid forms and combining these into a well-proportioned whole. The success of the recent exhibition of photographs of American architecture at the R.I.B.A. was largely due to the fact that the ordinary man could "see how the building looked," and it suggests the possibility of exhibiting photographs of scale models where space or transport difficulties make it impossible to exhibit the actual models themselves.

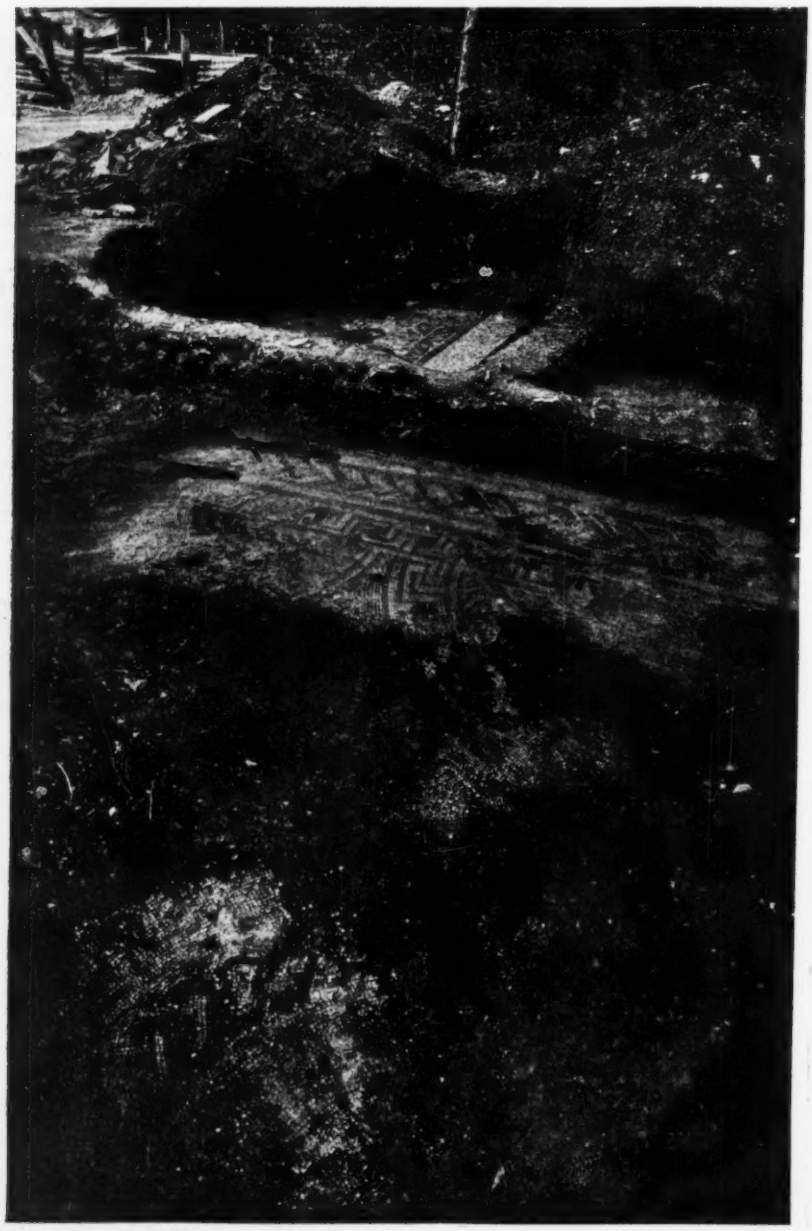


Photo: W. Dennis Moss.

Roman-British Mosaic Pavements at Cirencester. (*See p.* 873.)

But to return to the Salon—the work sent in can be grouped under the following main heads—"ideal" *projets* and public buildings; town-planning and domestic work; measured drawings; and water-colour sketches. This year the *projets* and purely ideal schemes are few in number. The most remarkable is M. Bigot's "*La Victoire* (*Statue monumentale pour les plaines de la Marne*)." It represents a colossal winged figure of Victory, of an archaic type, apparently over a hundred feet in height, built up in regular courses of masonry. The monument is illustrated by a fine monochrome perspective, and, in looking at this gigantic but for ever immobile winged figure, one is tempted to think that the artist has unconsciously but truly represented what "victory" has come to mean for France. M. G. A. Labro sends a *projet* for a "*Manufacture de tapisseries et de tissus d' art*," which shows a well-composed plan of the traditional type. The set has most of the qualities and a few of the defects of a big *projet* of the Beaux Arts School. Another large scheme, for "*Un monument élevé sur une île frontière, pour commémorer l'alliance de deux pays*," by M. R. Bouchet, fails as a composition by the lack of proportion between the horizontal lines of the bridge and the overpowering mass of the monument itself; the detail is interesting, but the drawing is somewhat weak. A design by M. F. M. Decap for "*Un monument aux morts pour le Département des Vosges*" is heavy and lacking in refinement, and is evidently inspired by "Bosch" monuments, which strikes one as singularly unsuitable to the subject. M. R. J. Prud'homme shows a well-considered lay-out for "*Un Centre Universitaire*," illustrated by some attractive and well-rendered drawings. The delicate colouring and skilful accentuation of the important points in his large general plan are worth studying.

Turning to the *projets* for public buildings, the most important is the "*Projet d'éxécution de l'Etat de Rio Grande do Sul, à Porto Alègr (Bresil)*," by M. C. L. M. Gras. This illustrate, a stately palace in the Louis XIV manners with a well-balanced plan; the elevations (as shown in the drawings and small photographs) are well-proportioned and correct in detail. But there is no suggestion that the building is in a tropical, or sub-tropical, climate, and the rather pedantic adherence to Louis XIV planning and detail detracts from the interest of the work as a contribution to modern architecture. The "*Institut Agricole de l'Université de Toulouse*," by M. B. J. Guitard, affords a refreshing contrast. It is a simple block of buildings, but is admirably expressive of its purpose. The set is well drawn and the perspective view is excellent. M. Guilbert shows a good set of drawings, carefully rendered in Indian ink in the traditional French manner, for the "*Agrandissement du Collège de France*," in which the character of the existing work has been carefully followed, but not slavishly imitated; the coloured perspective view of the interior of the amphitheatre is a clever bit of drawing. A large but uninteresting "*Projet de l'Hotel de Ville de Lausanne*" is enhibited by M. L. E. Lucas. The scheme is really an entension of the existing building, which appears to have a certain amount of character; this seems to have been overlooked in the design for the additions, which are rather commonplace examples of the conventional French town-hall. M. J. H. M. Lambert captivates the eye by a delightful sheet of small plans, elevations, and perspective water-colour sketches for a public garden on the Riviera, "*Esquisse pour un jardin publique mediterranéen* (*Jardin Publique de Nice*)." The scheme is marked by a good plan and the details are simple and well designed.

The difficulty of designing a small school war memorial where funds are limited and a tablet with names must be a prominent feature has been resolutely tackled by M. H. J. Alexandre in his sketch for the "*Lycée Marceau à Chartres, avant projet pour l'éxécution d'un Monument à ses morts.*" The design shows a row of Doric columns of the Pæstum type, supporting a wooden pergola, with a tablet (on which the

names are to be inscribed) as the central feature; the scheme is simply treated and dignified in effect, though there is a lack of harmony between the archaic Doric and the modern French detail of the central tablet.

An exhibit which attracted considerable attention is the "*Plan d'aménagement et d'extension de Lille*," by MM. L. S. Cordonnier and J. Gréber. This design, submitted under the pseudonym of "*Cœur de Flandre*," was awarded the first premium in the recent international competition for a town-planning scheme for the town of Lille. The device chosen by the joint authors of the plan forms the *motif* of their plan; the shape of the city almost exactly represents an anatomical diagram of a heart, the Citadel being in the position of the auricles and the canals and main roads representing the arteries and veins, radiating outwards and pumping life and energy to the suburbs. The seven large-scale maps which illustrate the plan are clear and well drawn, and the distinctive colours used are well chosen and harmonious; the maps show the *région économique*; disposition of new and existing open spaces; traffic; and main roads, railways and canals. One sheet, to a larger scale, shows the replanning proposed for the area inside the old fortifications, of which the Citadel alone will be retained. The seven perspective views are weak.

The reconstruction of the "*Collège des jeunes filles d'Arras*" (badly damaged by shell fire during the war) as schemed by M. P. Sirvin, is interesting, and the lay-out plan is good, as is the case with his two alternative designs for the "*Ecole Normale des Institutrices d'Arras*," but both sets are spoiled by the crude and violent colouring adopted for the elevations. The same defect is noticeable in M. M. Payret-Dortail's "*Projet de Groupe Scolaire pour la Ville de Suresnes*," which has a good straightforward plan and would probably look better in execution than it does on the drawings.

A little stand in one of the architectural rooms is surmounted by three excellent scale models, exhibited by M. J. Gréber, of three types (A3, B4, and C7) of houses for a *Cité-Jardin*. Round the stand are plans and perspective views in colour of different types of small houses, evidently inspired by English work as seen through French eyes. The perspectives are well drawn and are treated in a flat decorative manner which is attractive. The designs are free from those curious eccentricities which French architects, until quite recently, considered suitable for a small "cottage," but which are gradually disappearing owing to the increasing study of British domestic work. Another good model, this time for a garden lay-out, is shown by M. F. B. Deprat; the model is cleverly done, though the scheme is not particularly interesting.

An excellent set of fully figured working drawings is sent by M. Bivel, "*Une Hôtellerie au bord de la Loire*," which is good in plan but lacks interest in elevation, especially in the detail.

In the measured work a particularly fine set of thirty-five drawings of great delicacy and refinement is shown by M. J. Formigé, "*Les monuments Romain de la ville d'Arles (Bouches du Rhône)*." The whole set is worth studying, not only as a careful survey of existing remains and a logical reconstruction of some typical Roman buildings but for the delightful water-colour drawings by which it is illustrated. It is to be hoped that the R.I.B.A. will invite M. Formigé to send this set of drawings to London for exhibition in the galleries of the Institute, as they would be of real value to students as examples of fine architectural draughtsmanship.

M. C. Chauvet shows an excellent set of water-colour drawings of the "*Décoration murale; Salle de justice baronniale, au Château de Manta (légendes françaises)*," but there are no figured dimensions or scale to the drawings. M. L. E. Ferlet illustrates an interesting Moorish building, "*Tombeaux des Sultans de la dynastie saadienne à Marrakech, Maroc*," in some careful drawings spoiled by the body colour, which almost obscures the pencil line of the delicate detail. M. Bricmont shows a valuable sheet of measured work which is made more interesting by the inclusion of some small photographs, "*Les Ruines des environs de Reims*"; the drawings are carefully done with figured dimensions and a scale.

M. F. C. Baud's "*Puits du Château de l'Escoublère à Daon*," is well drawn and rendered, as is M. F. E. Féuzy's "*Rélevé des Fonts Baptismaux de l'Eglise de Labuissière (Pas de Calais)*," where the rendering gives the appearance of a photographic enlargement. These two drawings are really more archæology than architectural measured drawings, and one doubts whether any architectural knowledge is gained commensurate with the amount of time spent in their preparation. One is surprised that with so wide and varied a field at his disposal for study the French student so often selects either a subject of no architectural importance or some building of the Romanesque or Gothic period which has little practical value in the study of design and detail applicable to modern work. This applies also to the "*Etude et rélevé du Château de Pau (Basses Pyrenées)*," illustrated by M. Montariol in a number of drawings of average merit and a good perspective sketch; we rather get the impression that not all the work is from a study on the spot. Good measured work is also shown by M. S. Maier, in a careful set of drawings in the manner (but lacking the brilliance) of Viollet le Duc, of the "*Eglise de Sézanne*"; by M. Cauchard, "*Fragment du Jube de Limoges*," and by M. M. L. Charles, "*Le Vieux Périgeux*."

Among the many excellent water-colours and sketches we specially noticed eight water-colours by the late H. T. Eustache; all these are marked by the transparency of shadows and the accuracy of draughtsmanship which mark the true water-colourist. "*La Voie Sacré*" is certainly the best thing of its kind in the *Section d'Architecture*, and the artist has succeeded in expressing the clear atmosphere and brilliant sunlight of Rome. Excellent, too, are the little sketches of "*Corfu Pendant l'Occupation Française de* 1916," by M. J. L. Malot, who has captured something of the elusive charm of this beautiful island in its varying moods.

"*Seize Aquarelles*," by M. P. P. Mouret, are delightfully fresh and sunny, and M. E. J. Forget shows five good water-colour sketches of streets in old Paris. He has unfortunately exaggerated the peculiarity of the old streets where the buildings have a slight "batter" into an absurdity of impossible constructional stability. M. Cretelle exhibits a collection of etchings of architectural subjects which—though sometimes a little weak in technique—are all marked by character and imagination; this is more particularly the case in "*La Sépulture de Saint Mihiel*," and an interior view of the ruined "*Cathedrale de Soissons*."

British Exhibits.

The work shown by British architects is (with one or two exceptions) that of members of the British section of the Franco-British Union of Architects, and these drawings have been hung so as to form a special section in the first architectural room. The exhibits are, for the most part, perspective drawings or water-colours, most of which have already been seen in England, but are certainly worth seeing again; taken as a whole they are a good representative collection illustrating much of the modern work of note in England for the past ten years or so.

Domestic work does not unduly predominate, though it is this side of our architecture which attracts our French friends, who expressed their admiration of the charm of such typical examples as the late Ernest Newton's "Feathercombe," "House at Burgh Heath," and "Flint House, Goring"; or Mr. E. G. Dawber's four exhibits, "Eyford Park," "Nutley Down," "Nether Sewell Manor," and "Hamptworth Lodge."

Sir Edwin Lutyens' "Design for a National Memorial to King Edward VII, Trafalgar-square," appealed strongly to our French confrères, though some of us may find his other exhibits, "The Headquarters of the Theosophical Society, London," "Roehampton House," "The New West Wing, Temple Dinsley," and "The War Memorial Church," Basildon," equally interesting.

Sir J. J. Burnet is well represented by six sets of drawings. "Adelaide House, London Bridge," a fine coloured perspective, attracted much attention as a logical treatment of the problem of the city office building. The reconstruction of "Duart Castle, Isle of Mull, Scotland," "The Banqueting Hall of the Merchant Taylors' Company," two water-colour drawings showing the interior decoration; "The Royal Hospital for Sick Children, Glasgow," and a sheet of small perspective sketches of a proposed hotel and other buildings at Loch Ranza, Arran, formed a notable example of the many-sided activities of Sir John Burnet and his partners in London and Scotland.

Mr. Paul Waterhouse shows a delightfully picturesque group in "The Island Buildings, Mount Melville," though one regrets the absence of a plan.

Messrs. J. W. Simpson and Maxwell Ayrton exhibit some charming pen-and-ink perspective views, "Lancing College, the New Wing," "Haileybury College, the Entrance Front," and two small houses at Keighley and at Hertfordheath, all typical examples of their well-known architectural skill.

Messrs. Mewès & Davis contribute a selection from the working drawings of their "Prize Design for the Reconstruction of the London County and Westminster and Parr's Bank, Lothbury, E.C.," which also attracted considerable notice, especially for the skilful planning of the "central" feature so that it appears so from the street though the plan shows this is not the case.

Another exhibit which came in for special notice was a selection from the Rome Prize drawings of the "Reconstruction of Praeneste, Palestrina," by Mr. H. C. Bradshaw.

On the same walls Mr. Alexander Paterson's "Proposed Municipal Buildings, Gourock, Renfrewshire," shows a considerable trace of his training in M. Pascal's *atelier*, and well expresses the purpose of the building.

We also noticed two small examples of Mr. Arthur Keen's work; a sheet of working drawings of the "Village Hall, Limpsfield," and a well proportioned "Memorial Tower, Friern Barnet," of graceful lines and silhouette.

Professor Reilly sends two designs, the "Chancel Screen, St. Barnabas Church, Shacklewell, London, E.," and the "New Building, School of Architecture, Liverpool," both characteristic examples of his work.

Sir Banister Fletcher also shows two small exhibits, the "London County and Westminster Bank, Hythe," and a water-colour drawing of the "Mausoleum to the late Professor Banister Fletcher in Hampstead Cemetery," which also are good examples of his work.

Mr. Farey is represented by two charming water-colour drawings, "A House at Forest Row" and "A Design for the Residence of a Royal Personage."

Mr. Cart de Lafontaine is represented by some small holiday sketches and by the working drawings and photographs for "A Monument to French Prisoners of War at Norman Cross, Hunts," and a small "Memorial to the late Lieut. D. A. Kerr, at Richebourg St. Vaast, France," which we illustrated last week. He also exhibits an interesting scheme for the architectural treatment of the British Military Cemetery at Carnoy, in the Department of the Somme, for the War Graves Commission.

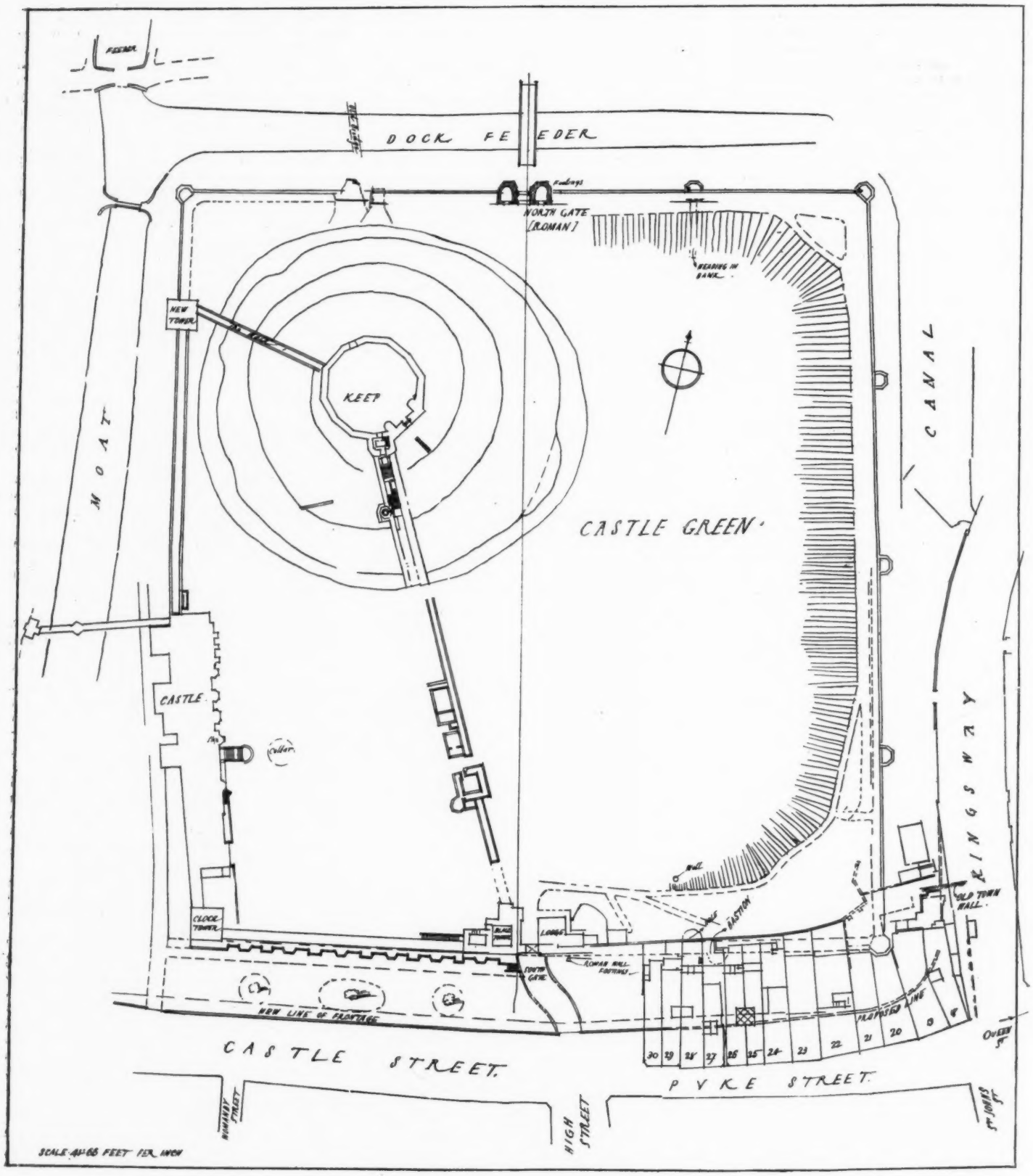
Messrs. Blow and Billerey send two exhibits; "The Main Staircase, No. 17, Carlton House-terrace," a clever water-colour perspective drawing, and "Little Ridge, Tisbury, Wilts."

Mr. C. G. Scott is represented by one fine perspective drawing, "Church of Our Lady, Northfleet." A "Group of Houses at the Hampstead Garden Suburb," by Mr. Raymond Unwin, is attractive; the block plan is excellent.

Messrs. Slater & Keith send a couple of exhibits, one for the extension of Messrs. Bourne & Hollingsworth's, Berners-street, a good example of modern shop architecture, and a sheet of three water-colour perspectives of "Cottages at Garston Manor."

Mr. H. M. Fletcher shows a perspective view of "The New House, Airlie-gardens, London."

Messrs. Easton and Robertson show a design entitled "Luckington Court, Wiltshire."



Plan of Cardiff Castle.

From a drawing by MR. H. SESOM-HILEY, late Architect to the Castle.

[Showing proposed Duke street improvement and the work carried out by William Burges, A.R.A., William Frame, and Mr. Hiley. The Castle will be visited by those attending the R.I.B.A. Conference to-morrow (June 10).]

MR. BELLOC AND DECAY.—I.

BY H. B. CRESWELL.

THOSE who heard Mr. Hilaire Belloc's address at the Architectural Association on May 2 (of which an abstract was published in *The Builder* for May 26), and who enjoyed the logical and witty speech in which he dealt with certain cold, indigestible questions fed to him by the President, will not, perhaps, find a review of certain aspects of his remarks unwelcome.

Although Mr. Belloc, in his broad sympathies as a poet, traveller, novelist, satirist, historian, lecturer, Member of Parliament and farmer—to mention some only of the activities of his amazingly versatile mind—must certainly believe in human nature (for what idealist with a sense of humour does not ?), his cool, philosophic approach to his subject undoubtedly chilled the warm blood of his audience by implications of pessimism.

Now pessimism is inadmissible anywhere and at any time. Pessimism is inhuman, a perversity, a cheap negation, a point of view only to be answered by a dose of medicine or a bottle of wine. The heavy-squatting hopelessness which characterises it will never be tolerated at the Architectural Association which is incarnate with the spirit of action and inspired by zest in the promise of the future. It is the province of the philosopher to sit apart and watch the signs and coldly read the portents; and this is, perhaps, the reason why philosophic treatises often remain on bookshelves till they are taken down and dusted by some other philosopher. Philosophy does not guide, for it does not deal in hope; and not to hope is pessimism.

In actual life no one takes the pessimist seriously. In days of stress, when the highest attribute of hope—courage—is called for, the pessimist dare not raise his head; in times of smooth security he is the occasion only of merriment. The more dismal his prognostications, the more solemn his denunciation, the more radical and sweeping his condemnation of existing institutions, the more roundly he makes us laugh. We extend to him the same welcome and the same gratitude which we bestow upon our favourite stage comedians. Dean Inge, for instance, is fast winning a position of the sort long ago secured by Mr. Bernard Shaw, whose (apparently) serious attacks upon established codes and usages set him at one time on a pinnacle beside Dan Leno and now causes him to fill our eye equally with George Robey. This is not to say that the Dean of St. Paul's and our premier dramatist are not valuable influences for progress. They harrow the ground; they break up obstinate clods of habit; they are continually setting us annoying questions to which we must, for our peace of mind and respect for humanity, find an answer. But neither of these men are leaders; they show no way out of the condition of chaos in which they very successfully and contentedly disport themselves; they hold out no hope; they are pessimists and we laugh at them, and the young men of the Architectural Association were instantly ready to place Mr. Belloc in the same category. Various speakers tried to rattle him in a good-humoured way. They would have none of his prophecies of coming doom. Some, accepting his prognostications, manfully claimed that the future lay in their hands and that they would mould it. Others, by implication, suggested that Mr. Belloc was suffering from the blues. This is all as it should be: to face the facts; to know ourselves; to determine not to be the victims of fate, but its masters, and to laugh at conceptions which depict man in an inevitable decay directed by the exercise of his own will, is to stimulate at once the reaction which might otherwise only assert itself under stress of disaster.

There is a dark way, however, in which to meet the dark prophecy of the pessimist; the method was applied to Mr. Belloc by one of the senior speakers, and it is often employed against reformers. The method in question is that of the shallow optimist. The robust optimist trumpets courage and hope and if, out of his abundant faith in human nature and the essential beauty of life, he is sometimes apt to gloss discouraging facts instead of facing them, his, nevertheless, is the voice of the leader to action. The shallow optimist, on the other hand, is the disseminator not only of pessimism, but of cynicism as well; and even riotous optimism may be the vehicle of true pessimism, as we may observe if we read a certain catch-penny book lately thrust upon the public, in which life is represented as containing not one human or inspiring quality, so that the paltry volume ought properly to be called, not "Success," but "Grab." The shallow optimist may be exhibited by his argument, which is something as follows: "You are a pessimist! What you complain of is only human nature. Things are just as they always were, and always will be. They will adjust themselves in time, and in the meanwhile we have got to make the best of them. It is no good abusing accepted institutions. I hate all this pessimism and cynicism. You can't alter human nature." This sort of thing is often heard. It is frequently the fortress of the lazy man who does not trouble to observe nor to think, or of the stupid one who cannot do either; but surely there is no truer cynicism—cynicism being contempt for human emotion—than to ascribe to human nature all that is ugly and mischievous in life and, surely, no deeper pessimism than to maintain that these evil propensities are inevitable, ineradicable, and amenable to no appeals.

It is true that human nature includes our animal natures, and that it, therefore, comprehends certain qualities which the artificialities of civilised life cannot allow, and some impulses that are detestable; but it includes also, every quality in man which transcends the animal, and all that is associated with the aspirations and upspringing of humanity from savage origins. It does not, however, include impulses that are false to animal nature, nor does it include perversities of that communal instinct which has alone made civilisation possible. Human nature is expressed in what we desire of ourselves and expect of others; it is not accountable for what we would ourselves avoid and find intolerable in contemplation. It is not human nature for a man to strike a woman (as any man who has received a blow in anger from a woman knows), for no male creature fights the female. It was not human nature for Cain to kill his brother, for human instinct would rather lead him to risk his life for his brother, even when quarrelling with him. Criminality is not human nature, for criminality is moral disease, and human nature exemplifies moral health. Human nature aspires, it does not cringe; it is jealous of the repute of mankind, not callous of depravity.

Human nature, in fine, is the impulse to the healthy animal needs of men, to self-respecting citizenship and to that instinct of service which inspires the self-less devotion of men in scientific research, art, philanthropy and social reform, and which fires the young to emulate the achievements of great men, for it is by such aspirations only that civilisation has progressed. It is the work of such men, alone, that the world remembers with veneration, gratitude, or even respect. If the characteristics of human nature were lawlessness, self-seeking, drunkenness, gluttony, avarice, deceit, competitive obstruction, conspiracy to victimise the community man would long ago have decayed out of existence or climbed back into those tree-tops where, according to leading authorities, he once sat and scratched himself. Nature stands for health; disease is irreconcilable with nature. Human nature in its main current, is the impulse to moral health, and perversity of moral health does not belong to human nature but is its antithesis—inhumanity.

If, then, the decay to which Mr. Belloc considers we are fore-doomed, and which, in common with many, he thinks has already begun, is to be stayed and replaced by growth, it can only be by the power of human nature to maintain itself in health with that joyous courage which is the unconquerable attribute of human nature. To this end it is first necessary to face the facts of life; to strip them bare of the hypocrisy in which they try to make themselves publicly presentable; to pull the crab from its ambush in the shell of honourable custom in which it hides; to analyse motives, proclaim things for what they really are, and not merely refuse to countenance false standards and false values, but oppose them.

We have not to look far for the poisonous influence which is thwarting the wholesome aspirations of humanity. Mr. Belloc presented the case clearly. The decay he spoke of was not economic, for the world was now better equipped in its capacity to marshal wealth and embark on huge undertakings than ever before. It was not, he said, material, but spiritual; and in the speech with which he closed the discussion, he made clear that this decay was exemplified in the retrogression of popular ideals; the aggrandisement of false standards and low material ambitions; the absence of any dignified conception of the meaning of life or of what was best worth striving for.

There is no mystery as to what Mr. Belloc had in mind. Although he did not formulate the cause of these symptoms of decay, he was evidently well understood by some of the speakers, and by the majority of those present, whether they accepted Mr. Belloc's gloomy prognostications or not. That cause may be defined as a growing tendency to estimate all aspirations by a false material valuation, and make money the ultimate test of all activities.

It is not enough, however, to diagnose the disease; it is necessary also to be able to recognise the symptoms and consider how best they are to be relieved. This article will set forth, in conclusion, some glaring aspects of life which are unreconcilable with the ambitions of human nature, and display a few of the devices of material exploitation by which virtue is betrayed, true merit obscured, the ignorant and the simple victimised, the salesman set above the artist, the inventor above the scientist, the manufacturer above the craftsman, and the publicity agent above the lot.

It will attempt to show that these things are the result not of human nature, but of its antithesis, inhumanity; that it is due from human nature to discredit, expose, and fight inhumanity, and it will suggest some of the ways in which this may be done.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Notes from the Minutes.

The following notes are from the Minutes of the R.I.B.A. Council meeting, held on May 29:—

RELAXATION OF BUILDING BY-LAWS.—The Council have been informed by the Minister of Health that it is his intention to introduce leigslation for the extension of Section 25 of the Housing, Town Planning, &c., Act, 1919.

THE ARMSTRONG COLLEGE, NEWCASTLE-UPON-TYNE.—On the recommendation of the Board of Architectural Education the Council have decided that the first three years of the diploma course of the Armstrong College be recognised on the usual terms as exempting from the intermediate examination of the R.I.B.A.

RETIRED FELLOWSHIP.—Mr. J. Douglass Mathews (F) was transferred to the class of "Retired Fellows."

R.I.B.A. Henry Saxon Snell Prize, 1922–1923.

The subject set this year for the above prize is a design for a maternity home and infant welfare centre for an industrial town. The memorandum setting forth the objects of such an institution, and further particulars, has now been published, and may be obtained free of charge from the Royal Institute of British Architects.

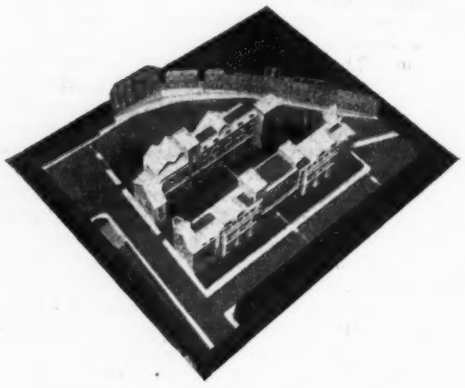
IMPROVED STANDARD OF TENEMENTS.

WE have received the following letter from Mr. H. R. Appelbee, of London :—

SIR,—In your issue for April 28, Mr. Horace Field points out that the scheme of Geoffrey House maisonettes was anticipated a year or so earlier by a plan exhibited at the Royal Academy in 1920. May I be permitted to say that I have here in my office a model made twenty years ago, showing the same principle. It also exhibits a considerable extension of the idea and some other improvements.

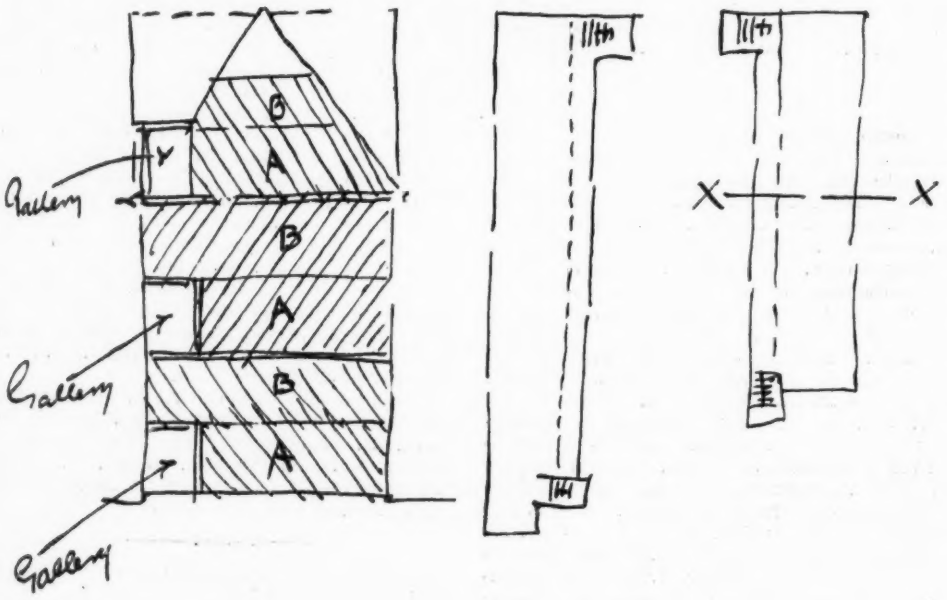
Fire-resisting stairs giving access to two flats only at each level are an expensive item with small tenements, and there is only one way of escape from top floors in the event of fire on a lower floor. A balcony scheme, as in Geoffrey House, with a stairs at either end, overcomes that, but it destroys the privacy of rooms abutting on it, and overshadows the windows of the floor below. In Geoffrey House there are four tiers of balconies.

In my scheme, which was for a very awkward site, there are three tiers of maisonettes, with the result that if balconies had been employed only two would have been necessary, although the building would be a story higher than the L.C.C. model. But, instead of balconies, there are open galleries (much on the principle of The Rows at Chester) on the alternate stories, and the bedroom floors extend over these and thus are not shadowed. This arrangement showed considerably more accommodation with better light, more air, larger playground space than the type that was



Design for Block of Tenements.

already going up on an adjoining part of the same estate. It failed of acceptance because the builder was only able to arrange finance by means of small mortgages on each of separate blocks and for the possibility of sale in small units.



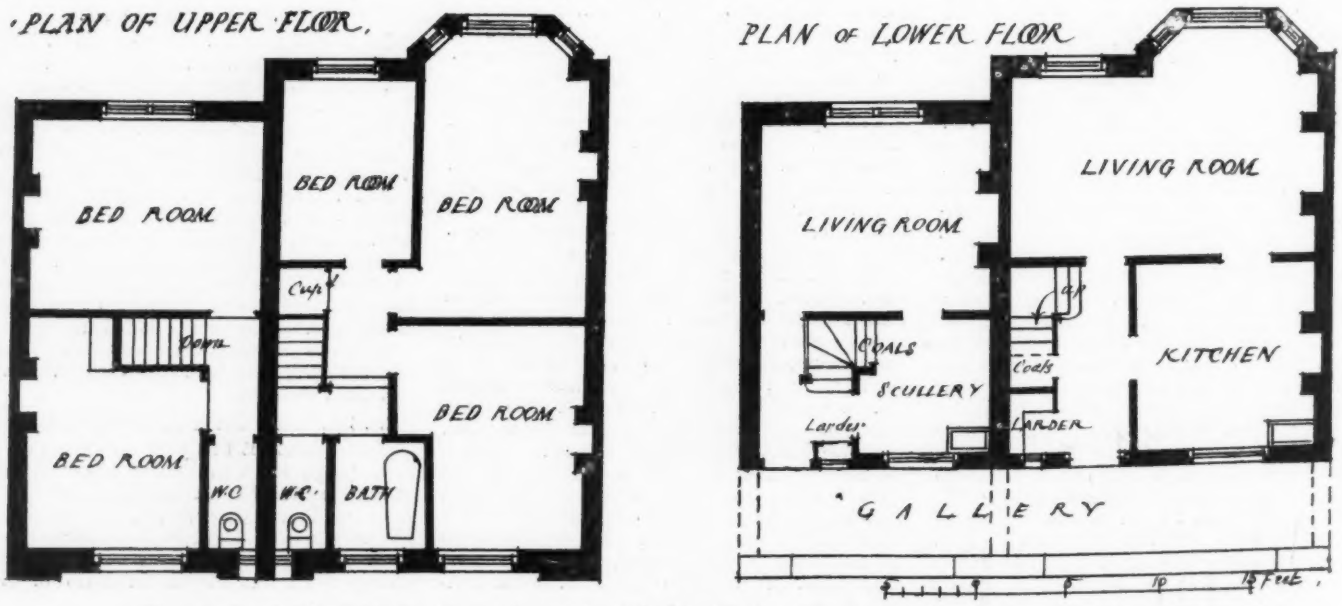
SEDGLEY URBAN DISTRICT COUNCIL HOUSING SCHEME.

SEDGLEY is an industrial area in South Staffordshire midway between Wolverhampton and Dudley. It stands on a ridge, the highest point of which is Sedgley Beacon, a well-known landmark in the Midlands. To the east of the Beacon, there is the thickly-populated "Black Country" stretching out for many miles; but on the west the town development stops abruptly, and there is an unbroken prospect of open country between Sedgley and Bridgnorth, terminating in the Welsh and Shropshire hills.

Apart from the general shortage of new houses, in Sedgley there is a large number of small insanitary dwellings under demolition orders, and before the war the Council contemplated an active building policy. Early in 1919 it was decided to proceed with schemes for a total of 800 houses on sites in three separate areas of the district. Excellent sites were obtained on favourable terms—one on the lower slopes of Beacon Hill, in the centre of Sedgley (44 acres), is a particularly good one; the others are at Clarence-street, Upper Gornal (16 acres), and at Lower Gornal (30 acres). These were carefully surveyed and contoured by the architect, whose services were retained by the Council on account of his special town-planning experience. The lay-out plans provide for 408 houses at the Beacon, 156 at Upper Gornal, and 236 at Lower Gornal.

The natural features of the sites have been incorporated in the lay-out; there are some fine trees and hedges at the Beacon, and at Lower Gornal a declivity along the centre of the site has dictated the position of many of the roads. Through the centre of the Beacon site a wide road, known as "Greenway," has been made, which will ultimately be carried through the area to the north of the site as a town-planning thoroughfare under the Council's scheme for the future development of this part of the district. There is an area of insanitary houses on the south-west of the site which it is intended to demolish and to deal with the ground under a reconstruction scheme as soon as there are sufficient new houses for the occupation of tenants. The site slopes steeply up towards the Beacon on the east and north-east, where there is a ridge along which the old Beacon-lane runs. Ample provision has been made for open spaces, recreation, and allotments; several groups of houses have been arranged around greens and crescents, to give added interest to the lay-out.

At Upper Gornal the site slopes pleasantly to the east. The levels and the shape of the



Sketch plan of two blocks showing staircases with galleries between them on the alternate floors.

land indicated that the most convenient lay-out would be a central road forking in the middle of the site into two quadrants.

At Lower Gornal the levels presented more difficulty than on the other sites, the land to the east and north-east being particularly steep; the finished road levels at the west end entailed considerable cutting and embankment. Summer Lane, along the southern boundary of the site, is of steep and difficult gradient, which, at present, makes it unusable for motor traffic. It is being widened and will be improved in due course, so as to form the principal approach to the new estate.

Contracts for the 800 houses and for the roads and sewers on the three sites were let in June, 1920, to one large firm of contractors, Messrs. Wilson Lovatt & Sons, Ltd., of Wolverhampton. For the first few months attention was concentrated on the laying of sewers and road-making work on the Beacon site, in order to provide access to the building plots. During this time it was not possible to do much building work, and no bricklayers were engaged until the middle of September, 1920. In places the sewers had to be laid very deep, and, apart from the ordinary difficulties experienced in deep cuttings, these trenches were cut in rock. The universal shortage—first of bricklayers and later of plasterers—was experienced, and interfered with the progress of work. During recent months, however, an ample supply of bricklayers has been assured, and the number of plasterers employed has been gradually increasing, so that good progress has been made since last summer. About 170 houses are occupied, and a further 250 are nearing completion. The last 100 houses have been kept in a separate section, and by arrangement with the Ministry of Health the contractors have met the architect by agreeing to lower basis prices for these 100 houses, although they were included in the original contract, which will effect a considerable reduction in their cost, apart from the automatic reductions under the contract owing to falling prices of materials and labour.

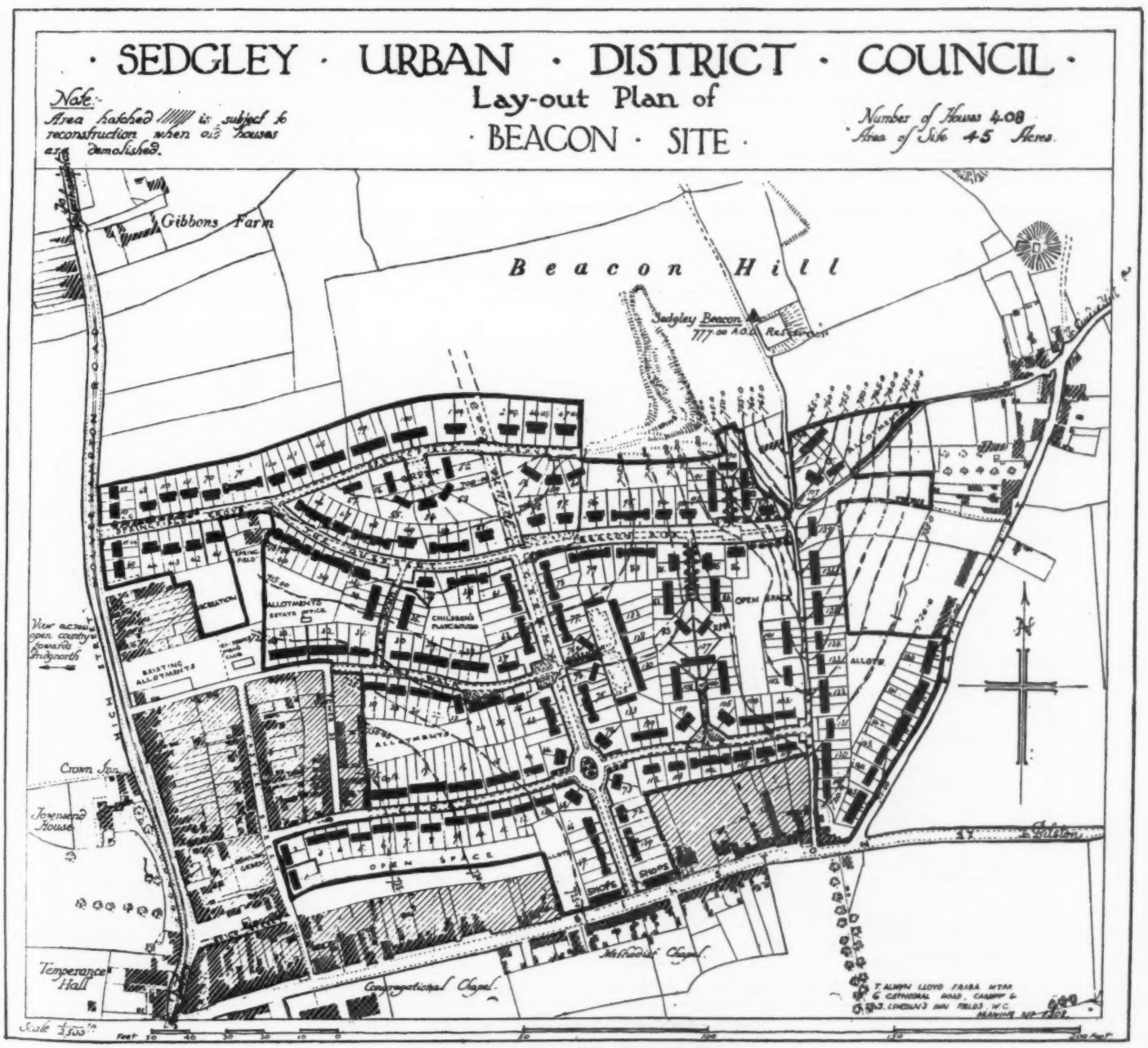
The house plans are of several types, about 500 of them being of Class "A" (living-room, scullery, downstairs bathroom, and three bedrooms); and 300 of Class "B" (living-room, parlour, scullery, three bedrooms, and bathroom upstairs). In one type—a block of four—four bedrooms have been provided in the centre houses. The external walls are mainly 11 in. cavity, built in Black Country multi-coloured facings with light joints; some blocks have 9 in. walls covered with two coats of cement, finished rough. The roofs are mainly covered with slates, in which a variety of sizes and shade has been obtained; but special groups facing greens and all houses in cul-de-sacs, where the general design provided for it have sand-faced tile roofs. Double-hung sash windows have been used throughout. The ground floors are finished in granolithic, except the halls, which are tiled. The rooms are of the maximum area permitted by the Ministry of Health before these were subsequently reduced. The woodwork, internally and externally, is primed and painted three coats.

Sites are reserved for shops on the Bilston-street frontage of the Beacon site, and on the Clarence-street frontage at Upper Gornal. The Council also hopes to arrange for the erection of a public hall and meeting room on the former site.

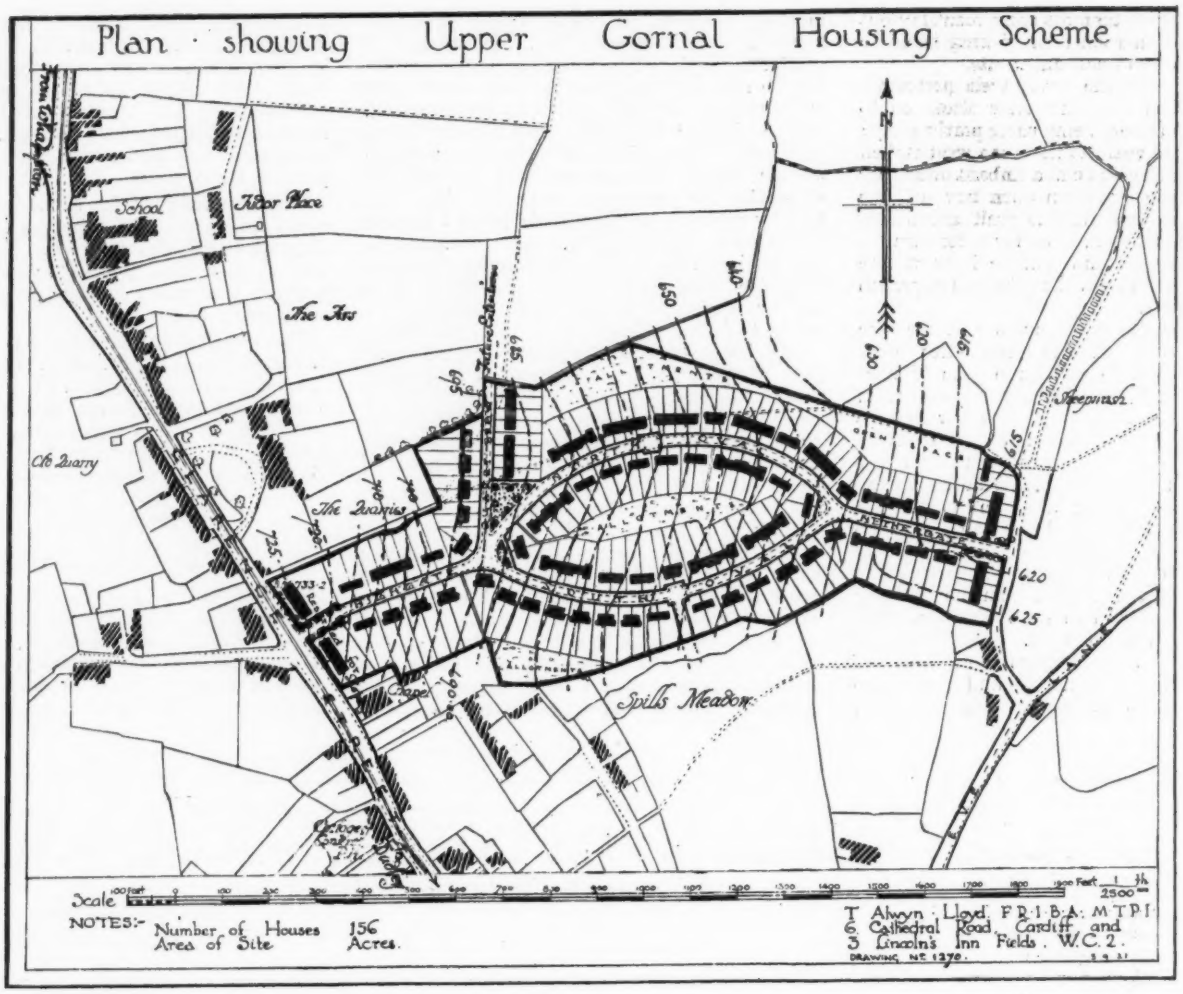
The architect for the scheme is Mr. T. Alwyn Lloyd, F.R.I.B.A., M.T.P.I., of Cardiff, and 3, Lincoln's Inn-fields, W.C. 2; and the building superintendent in charge of the works, with one clerk of works under him, is Mr. R. E. Jones. The quantity surveyor is Mr. A. W. Baylis, P.A.S.I., of Birmingham.

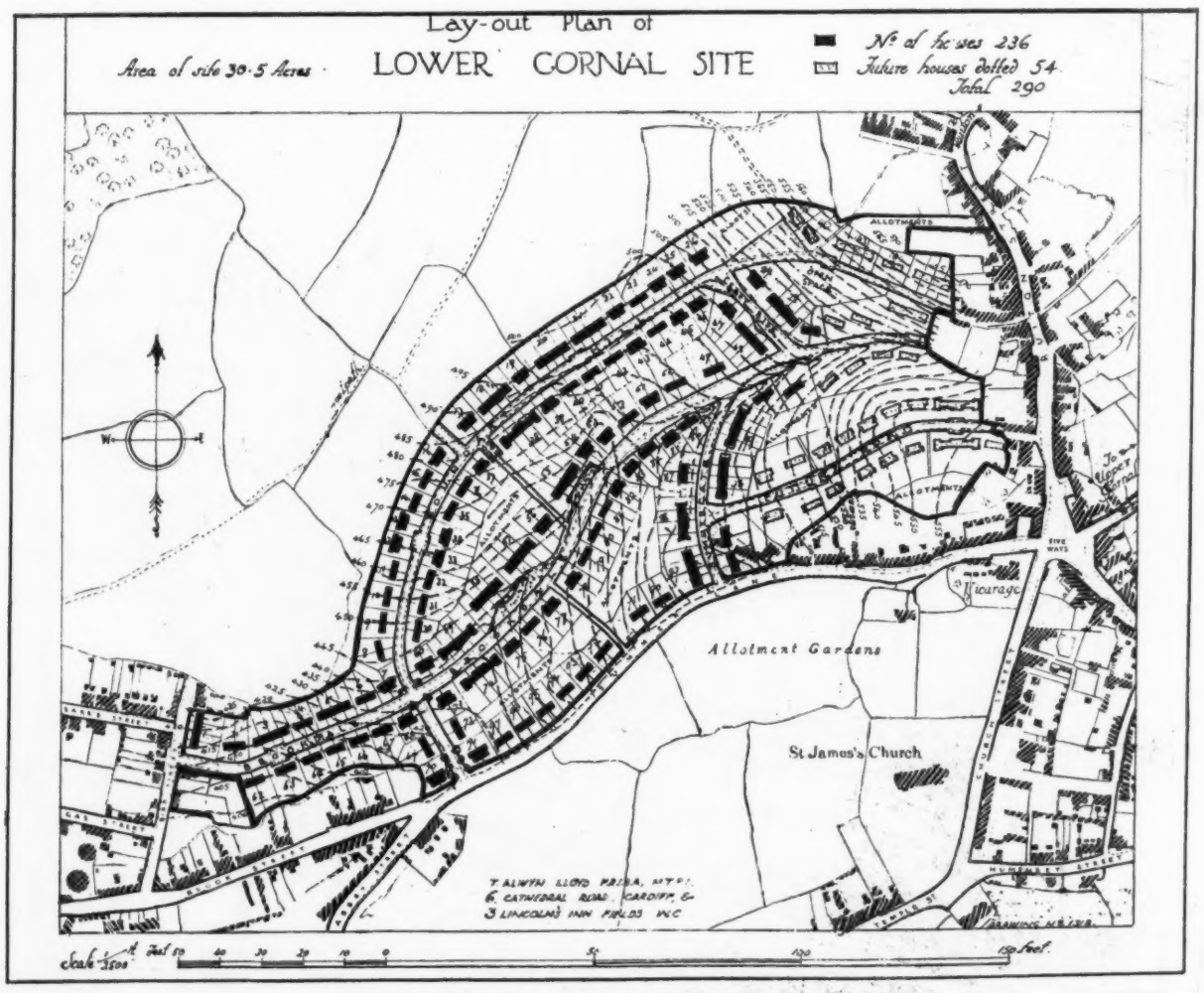
An Architect's Estate.

Major Charles James C. Pawley, V.D., of Melbury-road, Kensington, and of Victoria-street, Westminster, architect, the originator of the scheme for an Empire War Memorial on colossal lines at Westminster, who died on February 7, aged 68, left estate value £85.



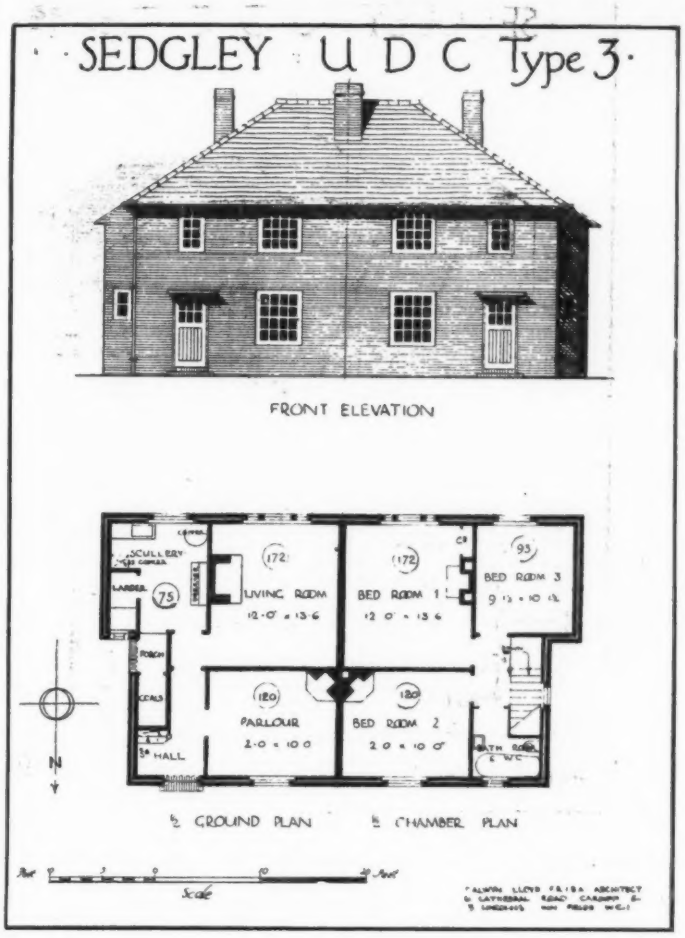
MR. T. ALWYN LLOYD, F.R.I.B.A., Architect.

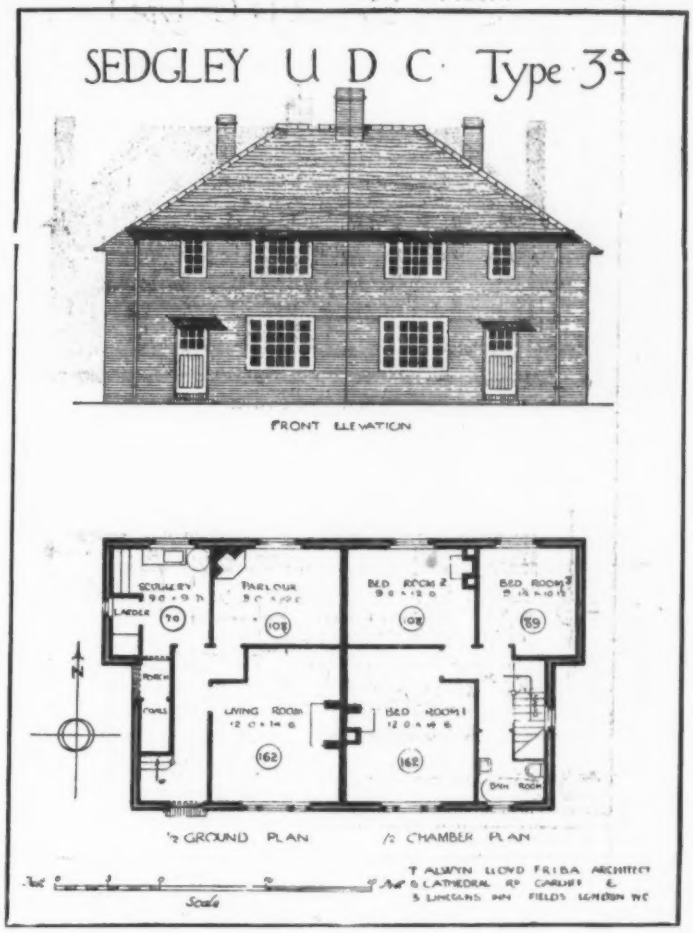


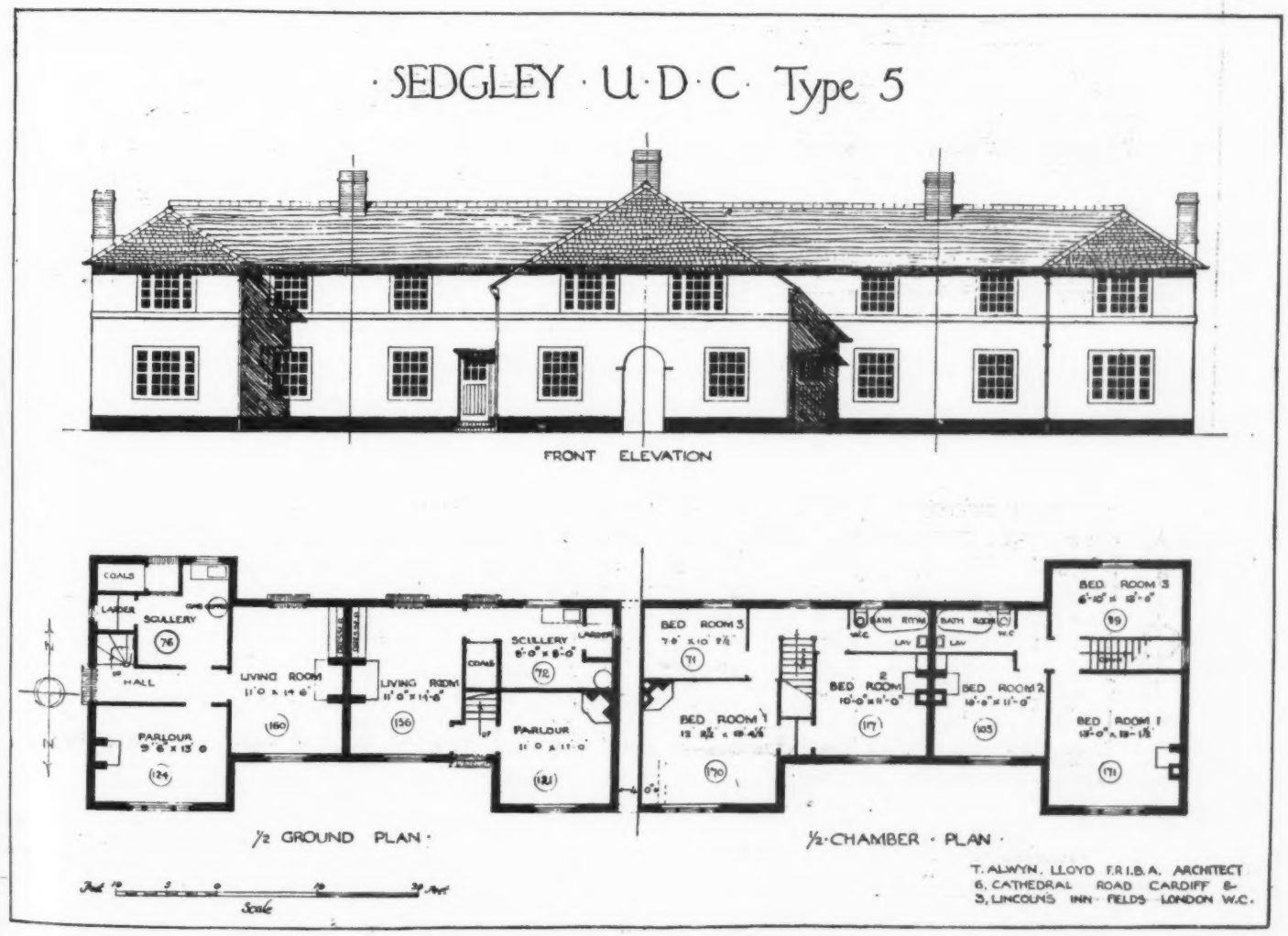


Sedgley Urban District Council Housing Scheme.

MR. T. ALWYN LLOYD, F.R.I.B.A., Architect. (*See p.* 878.)







Sedgley Urban District Council Housing Scheme.

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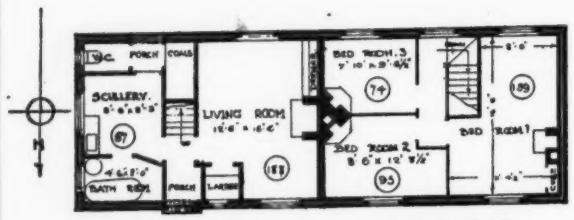

½ GROUND PLAN ½ CHAMBER PLAN

T. ALWYN LLOYD F.R.I.B.A. ARCHITECT
6, CATHEDRAL ROAD, CARDIFF &
3, LINCOLNS INN FIELDS LONDON W.C.

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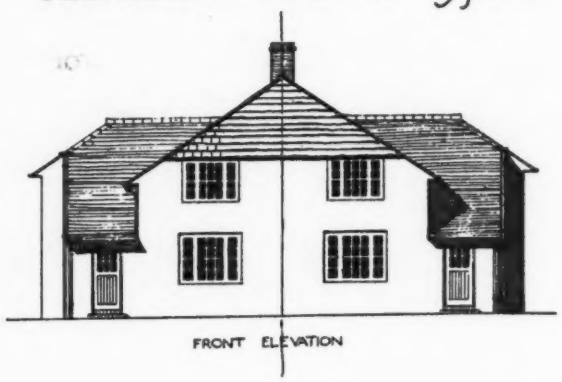

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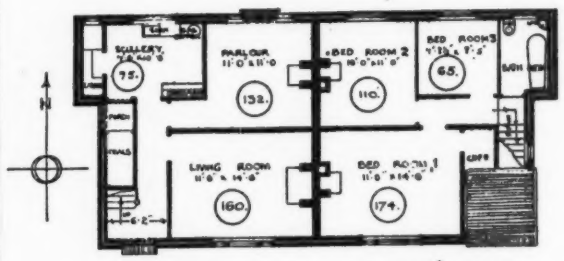

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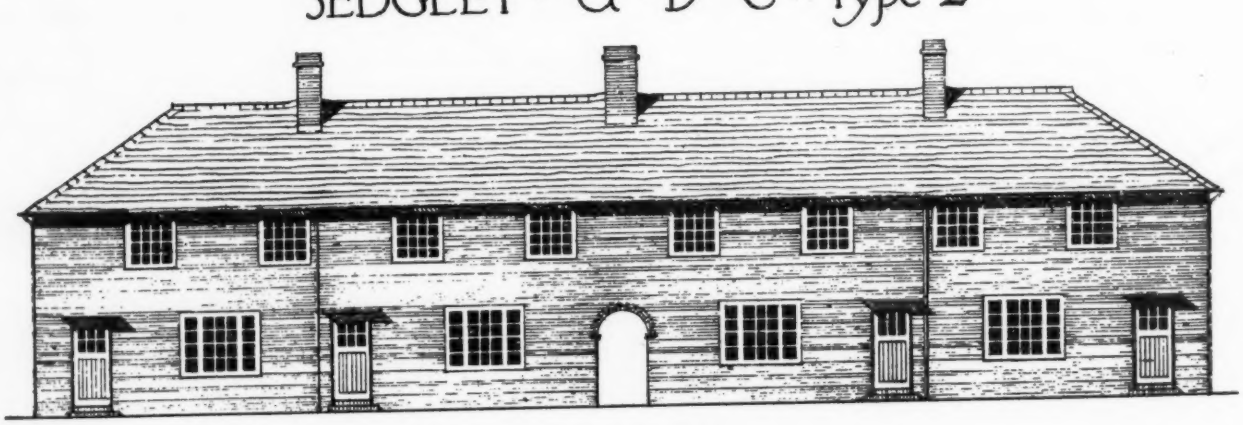
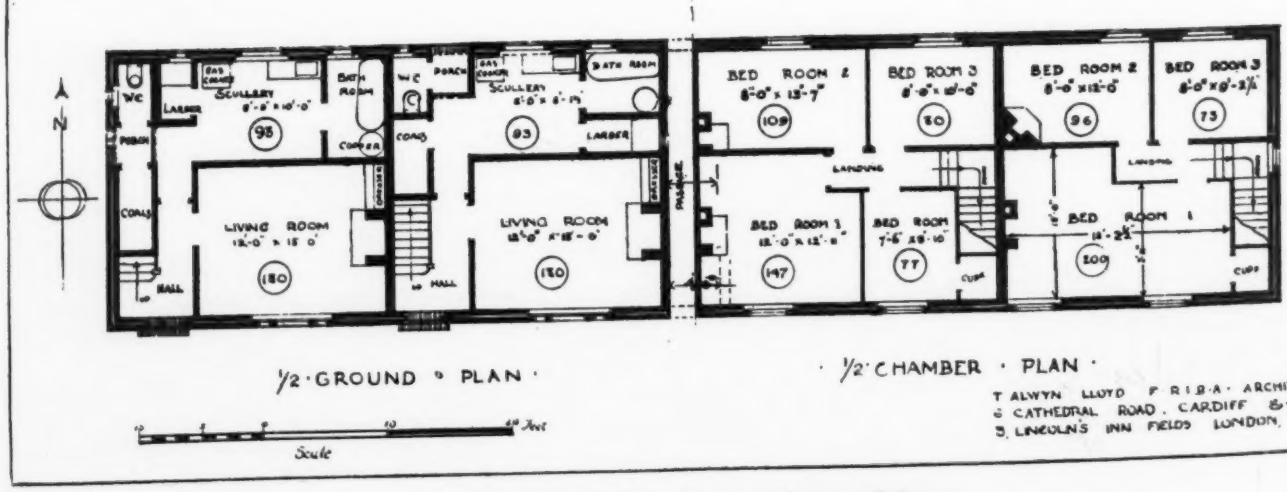
6, CATHEDRAL ROAD, CARDIFF &
3, LINCOLNS INN FIELDS LONDON W.C.

Scale

SEDGLEY · U.D.C. Type 2.



FRONT ELEVATION



½ GROUND PLAN ½ CHAMBER PLAN

T. ALWYN LLOYD F.R.I.B.A. ARCHITECT
6 CATHEDRAL ROAD, CARDIFF &
3, LINCOLNS INN FIELDS LONDON, W.C.

Scale

Sedgley Urban District Council Housing Schemes

MR. T. ALWYN LLOYD, F.R.I.B.A., Architect. (*See p.* 878.)

LANDLORD AND SUBTENANT.

WE may draw attention to a case recently reported, Reynolds *v.* Bannerman (*Weekly Notes*, April 1), which is of importance to landlords. The plaintiff had let a house to the defendant Bannerman, and the latter had sublet a portion of it to a Mrs. Baldwin. In 1919, the defendant had given the owner notice of his intention to determine his tenancy on March 25, 1920, and had also given his subtenant notice to quit on or before the same date. The defendant had duly quitted the premises on that date, but his subtenant, relying on the Rent Act, had refused to quit, and remained on, paying rent to no one as neither the plaintiff nor defendant had demanded it, but paying rates and taxes. After some eighteen months, the subtenant gave up occupation, and the plaintiff took possession and then brought this action against the defendant claiming the six quarters' rent, or, in the alternative, an equivalent sum for use and occupation on the ground that the defendant had continued in occupation of the premises by his agent, the subtenant. Under the ordinary law of landlord and tenant such an action could lie (Harding *v.* Crethorn, 1793, 1 Esp. 57, and Henderson *v.* Squire, 1869, L.R. 4 Q.B. 170), and the County Court judge had given judgment for the plaintiff, but the Divisional Court has set aside this judgment on the ground that the defendant had done everything he could do to give vacant possession, as under the Rent Act the case was distinguishable from those cited above where the tenant could have got rid of his subtenant by following up the notice to quit with the appropriate legal process. The Court also held that the subtenant was in no sense the agent of the defendant as she remained on as a statutory tenant under the Act

The plaintiff in this case seems to have done nothing at all as regards the subtenant, and had not even taken steps to obtain the rent, but the case suggests some interesting points. The position of the subtenant in this case seems defined by section 15 subsection (3), "Where the interest of a tenant of a dwelling house to which this Act applies is determined, either as the result of an order or judgment, for possession or ejectment or *for any other reason*, any subtenant to whom the premises or any part thereof have been lawfully sublet shall, subject to the provisions of this Act, be deemed to become the tenant of the landlord on the same terms as he would have held from the tenant if the tenancy had continued."

This subsection, and section 5 subsection (5) which defines the position of subtenants where proceedings have been taken and an order or judgment has been made, were considered in Hylton *v.* Heal (see our note, February 11, 1921), and, in that case, it was held that the latter section meant that if a landlord has a subtenant lawfully in possession and wishes to get him out he must proceed against him, and earlier proceedings against the tenant are immaterial, while section 15 subsection (3) means that if a subtenant would have a right to retain possession under the provisions of the Act he does not lose that right by the determination of the tenancy. Thus it appears that the landlord can only get possession from the subtenant on the same grounds that he can get possession from his own tenant, *i.e.*, grounds defined in the Act. But the case of Hylton *v.* Heal also decided this important point that where a tenant has given his landlord notice of his intention to quit, the subtenant is affected by that notice to this extent, that in claiming possession the landlord can avail himself of the provision contained in section 5 subsection (1) (*c*), and claim possession on the ground that in consequence of that notice he has entered into a contract to let or sell the premises and will be seriously prejudiced if he cannot obtain possession.

The Act bears very hardly on landlords as regards subtenants, for, as can be seen from this case, a tenant of the premises can give notice to determine the tenancy and quit, leaving a subtenant in possession. The landlord naturally, in such circumstances, would desire to obtain possession of his premises as a whole, but unless he can claim possession on one of the grounds specified in the Act he must accept the subtenant, and can only thus deal with part of the premises.

BOOK REVIEWS.

Structures in Rolled Steel Joists: Rapid Rules for Designing. Arranged by H. P. H. MORGAN.

These "Rules" are published in card form, 5 in. by 5 in. folded once, and consist of an abstract, by permission of the British Engineering Standards Association, of the properties of the old British standard steel I-beam sections from 3 in. by 1½ in. up to 24 in. by 7½ in., giving the weight per foot, section modulus and least gyration rad. Some of the rules are derived directly from the familiar bending moment and resistance moment equations, and are useful; but the rule for the area of sections could be conveniently replaced by the usual column of areas added to the table of section properties.

The rule for finding the least moment of inertia would appear to bear no significant correlationship to the rest of the rules, and in this connection the author's attention might be invited to the use of the mnemonic symbols *g* and *M* in lieu of *K* and Z for the *gyration* rad and *modulus* of section respectively.*

The rule for the "working stress" for stanchions ("fixed ends") is derived from formulæ evolved from the tables of working stresses specified in the L.C.C. (General Powers) Act, 1909, and the condition of "fixed ends," *i.e.*, ends fixed to other parts of the construction having such rigidity as will maintain the axis at the ends in its original position and direction under all loads less than the crippling load, is seldom (if ever) realised. For safe use the coefficient should at least be reduced to 5.5, which is agreeable to the condition of one end hinged and the other fixed, for concentric loading and a max. ratio of slenderness *l/g* of 140.

The rule for finding the "flange stress" is an approximation in which the degree of accuracy depends upon the particular section under consideration, and this gives an extreme fibre stress *f* approximately equal to that evolved by considering the more correct properties of the section.

The exact object of the rule is not apparent, and if used as an approximate basis for the design of *j ints* in the beam, the implied suggestion of neglecting to provide for the flexural resistance of the web, in large sections, would be distinctly erroneous. The author elucidates the significance of the rule by working out the "flange stress (load) at centre" of an I-beam 12 in. by 5 in. carrying a distributed load of 12 tons over a span of 15 ft., and states that it equals ". . . 22·5 tons," "so with sectional area of flange = 4.8 sq. in., stress = 4.6 ton per sq. in." This result, *prima facie*, would altogether fail to satisfy the present jargon of "economy," but it is worthy of note that 4.8 sq. in. is half the area of the *whole beam section*.

More correctly *by the rule* the max. *fibre stress* would be 22·5 ton + (5 in. × ·55 in.) = 8·2 ton sq. in., whereas the actual stress = 7·4 ton sq. in.

For the same reasons quoted above in regard to the "working stress" for stanchions, the coefficient of the expression governing the height of stanchions should be reduced to 11·7, or approximately 12.

Used with due regard to the conditions contemplated the card should prove a handy help to the builder.

Converting a Business into a Private Company. By HERBERT W. JORDAN. (London: Jordan & Sons, Ltd.). Price 1s. net.

Business men are often surprisingly ignorant of methods of procedure but little removed from the ordinary course of their affairs, and Mr. Herbert W. Jordan is not drawing any fantastic or improbable picture in assuming that the proprietor of an old-fashioned business might know nothing whatever of the processes to be adopted in transforming his business into a private company. The desire to escape excessive death duties combined with the intention of encouraging his sons to work in the business are given as probable inducements to the conversion, which is described step by step with explanatory notes as to the alternative methods of allotting capital to the various persons concerned. Duties and fees payable on incorporation of companies having a share capital are given in a table at the end of the book.

Books Received.

EAST ACTON MANOR HOUSE. (London: The London Survey Committee.) Price 21s.

GUIDE TO ENGLISH GOTHIC ARCHITECTURE. By Samuel Gardner. (Cambridge: The University Press.) Price 16s. net.

* See Mnemonic Notation for Engineering Formulæ: Report of the Science Committee of the Concrete Institute, with explanatory notes by E. Flander Etchells.

Margate Corporation Housing Scheme. MR. W. R. H. GARDNER, Housing Architect to the Corporation.

[This photograph shows the progress made on the Margate housing scheme, other illustrations of which were given in our issue for April 23, 1920. The builder is Mr. T. Lester.]

THE BUILDING TRADE.

EARTHQUAKES AND A HIGHER LONDON.

BY CHARLES DAVISON, Sc.D.

IN the discussions on a "Higher London," one element of danger has not been referred to—that of damage to lofty buildings by earthquakes; though, to guard against it, in the only way in which it can be reduced within the limits of safety, may seem an unnecessary precaution at the present day. Weak tremors are occasionally felt in London, the dying vibrations from distant centres, such as those of the Colchester earthquake of 1884, the Hereford earthquakes of 1863 and 1896, and even the Channel Islands earthquake of 1889. From such feeble disturbances no danger is to be feared. It is rather from its own earthquakes, from the shocks which, from time to time and at very long intervals apart, originate in a centre or centres below the area of London itself that we may look for injury to houses that cannot be regarded as earthquake-proof Nearly two centuries, it is true, have elapsed since a London centre was last in action. But, if we may judge from the earthquakes of other lands, the longer the interval that elapses, the stronger may be the next shock.

In the soft clays and gravels on which London is built, it would seem unlikely that any displacement could occur that would seriously injure well-built houses. But the London earthquake-centre is no doubt seated below, though perhaps not much below, this superficial layer of hardly more than a thousand feet in thickness. In fact, the presence of clay and soft earth is in itself a source of danger. In a great earthquake, houses built on hard rock suffer little. It is those which have foundations on loose ground, especially on "made land" in the neighbourhood of creeks and rivers, that the chief destruction occurs. We have only to look to our own earthquake-record to realise the need for care. Before considering the London earthquakes proper, reference may be made to two of our most destructive shocks, both of which visited comparatively unlikely ground. In 1382, on May 21, there was an earthquake in Kent, "the like thereof," according to Fabyan, "was never seen in England before that day nor since,"—a great earthquake, according to Stow, "fearing the hearts of many, but in Kent it was most vehement, where it sunk some churches, and threw them down to the earth." Five centuries later occurred the most destructive earthquake of which we have any knowledge in this country, that of Colchester on April 22, 1884. The area disturbed by this shock was about 100,000 square miles. In Colchester itself, more than 400 buildings were injured. But it was in the villages lying to the south of this town that the destructiveness was chiefly manifested. In one village (Abberton) less than half-a-dozen chimneys were left standing; in another (Peldon) every house and cottage was damaged, and about 70 per cent. of the chimneys were thrown down. If such an earthquake had occurred beneath the city of London—and the supposition is not in any way untenable—the effect on the older and less well-built houses may be readily imagined.

Of London earthquakes proper, the first undoubted shock was probably that of February 13, 1247. It was felt, as Matthew Paris says, "at various places in England, especially at London, and there mostly on the banks of the Thames. . . . and was very injurious and terrible in its effects; for, as was believed, such an occurrence was significative, inasmuch as it was unusual and unnatural in these western countries. . . . It was therefore expected, according to the threats of the Gospel, that the end of the world was at hand." Before the next earthquake worthy of notice, three centuries and more elapsed until April 6, 1580, when there was "a very great" earthquake in London and almost generally throughout England. The centre in this case was probably outside the city, somewhere in Kent, though at no great distance. According to Stow, "the great clock bell in the palace at Westminster struck of itself against the hammer with shaking, as divers clocks and bells in the city and elsewhere did the like; . . . a piece of the Temple Church fell down, some stones fell from Paul's Church; and at Christ's Church in the sermon while a stone fell from the top of the church, which killed out of hand one Thomas Grey, an apprentice [one of the few authenticated cases of loss of life from a British earthquake], and another also bruised his fellow-servant, Mabell Everet, so that she lived but four days after . . . ; divers chimneys in the city, part of them fell down, the houses were so shaken." After this, there followed two or three shocks of little consequence—one in London on December 24, 1601, "without much damage," another in London and other places on October 25, 1726, and lastly a reported shock in London on February 17 (N.S.), 1750.

This brings us to the "year of earthquakes," as Dr. Stukeley, the antiquary, called it, inaugurated by two strong shocks in London. They are well known to readers of Horace Walpole's "Letters" or John Wesley's "Journal." The first occurred on February 19 (N.S.), 1750, at about forty minutes after noon. So great was the interest excited by it, especially at the ensuing meetings of the Royal Society, and so numerous the records collected, that we can define approximately the boundary of the disturbed area. It was about 20 miles long, 15 miles wide, and contained about 240 square miles, its centre being close to London Bridge. Some slight damage was caused by it in London. A slaughter-house with a hayloft over it was thrown down, part of a chimney in Leadenhall-street, a chimney in Billiter-square, several chimneys and part of a house near Horsleydown, and some chimneys at Limehouse and Poplar. The intensity was apparently greatest in the district bordering on the river. "There were three distinct shakes or wavings to and fro," as John Wesley remarks, "attended with a hoarse rumbling noise, like thunder." Two slight shocks followed, and then one month later, on March 19, at about half-past five in the morning, there came a shock stronger than the first and of longer duration. The disturbed area was nearly circular, about 39 miles in diameter and containing about 1,200 square miles. Its centre lay two or three miles to the north of London Bridge, but it is possible, indeed probable, that both earthquakes originated in the same centre, lying perhaps somewhere between the two positions given. The damage on this occasion was slightly greater than on the last. Several chimneys were thrown down in different parts of London, part of a house in Old-street and two uninhabited houses in Whitechapel fell. "It was a strong jarring motion," wrote Wesley, "attended with a rumbling noise like distant thunder." The next day there was a slight shock, a mere tremor, in London, and again, eight years later, on December 20, 1758; but with these exceptions, there has been no further known disturbance in the London centre.

There is one significant feature about both of these earthquakes of 1750. Considering their strength, the areas disturbed by them were unusually small, the average disturbed area in England for the same degree of intensity being more than 20,000 square miles. The inference to be drawn from this inequality is that both earthquakes originated in shallow foci, not, indeed, within the soft material of the London clay, but probably at no great depth within the older rocks that underlie it. The London earthquakes, indeed, are not very unlike the local shocks which visit the flanks of a great volcano like Etna, and which are very sharp, often destructive, within a small area, not so much because of the strength of the initial motion as of the closeness of the focus to the surface.

If, then, we may judge from our limited experience in the past in the London district and the south-east of England, we may conclude that London may be free from serious earthquakes for many a year to come, though its immunity may end at any moment. Further, the earthquake, when it does occur, may attain to just sufficient strength to bring down, as before, a few chimneys in old and poorly-built houses, possibly not even to that degree of intensity. But there is no reason that I know of why London should not be visited by a shock of greater violence, by one, say, like the Colchester earthquake of 1884, and it would seem advisable, in making designs for a loftier London, that such a possibility should not be altogether left out of account.

UNEMPLOYMENT INSURANCE AND POOR-RELIEF.

The Government recently introduced a measure to deal with unemployment insurance during a further period of fifteen months from April 1, 1922, to June, 1923, and, in introducing the Bill, Dr. Macnamara, the Minister of Labour, had to give an estimate of the extent of unemployment to be anticipated in that period. His estimate was that the number of persons wholly unemployed between April 1, and the end of June would be some 1,900,000, and that the average for the whole period of 15 months would be some 1,500,000. The actual amount of the State contribution over that period would be £14,700,000, which would necessitate the borrowing powers being increased by about £11,000,000.

These figures show that the Government cannot look forward to an early and considerable revival in trade, and the Minister prefaced his explanation of the Bill by an earnest appeal for industrial peace, for such indications as there were of trade revival were very slight, and the small improvement might well be transitory and easily checked. The benefits are to be the same as under the Act of last November, and so are the contributions, but the 15 weeks benefit has to cover 30 weeks, so there will be five weeks' benefit, then a five weeks' cessation, and so on. There is a provision in the Bill that the Guardians, in giving relief, must take into account amounts received as insurance benefit, but the Minister recognised the danger there was in this long continued depression of persons claiming benefit without making serious endeavours to find employment.

A suggestion was made by Mr. G. Locker Lampson that a Royal Commission should be appointed to inquire into the overlapping of unemployment insurance and health insurance, and into the relations between the Poor-Law and unemployed persons, and we think such a step would be most advisable.

There can be no doubt that real distress exists in the country at the present time, but there is equally little doubt that, in some directions, an improper use is being made of the various forms of relief. The idea of unemployment insurance was an excellent one, and we heartily welcomed it, but the abnormal conditions now prevailing are seriously interfering with its successful operation. It affords a form of relief contributed to by the employers and employed, and is thus less objectionable than any other, but now unemployment is on such a large scale its principles are seriously interfered with. It was based on an actuarial basis and on defined lines, but its scientific basis is removed when poor-law relief is filled into all its intervals and the unemployed get relief without contribution and without work from the Guardians.

The Poor-Law administration at the moment

makes unemployment insurance almost an anomaly, and if there is a prospect of unemployment continuing on such a large scale and for so long a period as is denoted by the Minister of Labour, some inquiry should certainly be set on foot to determine the best and most just and economical scheme for dealing with a condition of unemployment which, we trust, can truly be called abnormal.

THE GRADING OF AGGREGATES FOR CONCRETE

WE have received the following letter from Mr. H. C. Badder:—

SIR,—The experimental work carried out by Mr. J. Ernest Marshall, and published in your issue for May 19, to discover a satisfactory method of proportioning aggregates, is very interesting, but carried out by his methods at the site of the concrete work it would be very costly. The difficulty of securing well-graded aggregates must be secured by some other means, and there is no doubt the work should be done by the firms supplying aggregates, as they are in the position to carry out grading at the cheapest cost by using a much larger number of power-driven screens and so supply a long range of sizes for re-mixing by the concretor to secure the results he requires in the concrete.

The time will come when engineers will specify concrete, not by proportions, but by the crushing strength required for the various parts of the work, and contractors must then use such proportions of cement and aggregate as will produce the required strength at 28 days. As Mr. Marshall infers, it is rare for any two mixes of 1–2–4 concrete to give the same crushing strength, and for high strengths it is often as much due to the skill and experience of the man in charge of the concrete mixing as to good proportioning.

As an illustration of what is meant, take Mr. Marshall's figures for a 3 to 1 well-graded mix for ship construction. His best crushing strength per square inch for 4 by 4 cubes at 7 days is 3,244 lbs., and for 28 days 4,366 lbs., and compare it with another set of figures for a 3 parts granite chippings, 1½ parts sands, and 1 part Portland cement, which crushed at 3,700 lbs. at 7 days, and 5,050 lbs. at 14 days. This difference must be due to skill in mixing and depositing, as well as to good grading of the aggregates. With an addition of a silicate cement with the same mix it gave 4,450 lbs. at 7 days, and 5,660 lbs. at 14 days, this greater density being gained by more of the calcium in the Portland cement being used to form lime silicate.

Again, tests made by the National Physical Laboratory with a 3 to 1 mix gave crushing strengths of 2,860 lbs. at 3 months, and 4,240 lbs. with 7 per cent. of silicate cement added to the same mix, and the percolation test for 125 hours with 6 ft. 9 in. pressure on 1½ in. slab gave ·024 on the plain concrete and ·002 on a silicate cement slab.

No doubt the mortar strength test is the best method of determining the quality of the fine aggregate, as it has been found that the mortar strength very closely indicates the quality of the concrete which can be obtained with any reasonably good coarse aggregate. In other words, the mortar strength is really the criterion by which to judge the fine aggregate, and the sand should be tested by sieve analysis, colorimetric tests for organic impurities, and for the percentage of loam and silt, if compressive tests of the sand are not satisfactory.

Mr. Marshall does not mention if any temperature cracks were formed in the thin walls of concrete ship work. Concrete of any mix has about the same coefficient of expansion as steel. Moisture, however, affects the concrete only. It expands when absorbing moisture, in the same manner that many other materials expand when wetted, the steel not being subject to this action. After the concrete is poured the steel remains unchanged, while the concrete ordinarily shrinks to a considerable extent as it dries out, and stresses are set up in the steel and concrete by this shrinkage, and the resulting formation of cracks, however fine, will produce a condition which may be favourable to the corrosion of the steel or the disintegration of the concrete after repeated changes from dry to wet conditions. With richer mixtures the increase in shrinkage stress may be relatively greater than the increase in ultimate strength.

The prevention of shrinkage stress and its results can be accomplished only by producing density and impermeability by other means, and the addition of percentages of a silicate cement, reacting with the excess calcium existing in Portland cement.

RENT RESTRICTION

IN its "Estate Market" column *The Times* recently published some very pertinent observations on rent restriction, which accord with the views we have always expressed in our columns. It states that "correspondents who evidently fear that the accumulating weight of evidence against the Act may eventually deprive them of the protection they enjoy under it" have written objecting to what estate agents almost everywhere have said against the Act; but, as *The Times* points out, although the Act has protected many tenants who needed protection, it has been found capable of gross abuses which have had a ruinous effect on owners of many houses; it has discouraged the acceptance of sub-tenants, and it has discouraged building enterprise. The protected persons, according to this article, also urge that as owners will only sell if tenants are displaced they would have nowhere to go to, as thrice the sum paid for houses a few years ago is now demanded. This latter argument shows a confusion in the minds of these correspondents between cause and effect. So long as the Act is in force owners cannot let their houses at a commercial rent; they have to let at practically pre-war rents to tenants who become attached to the freehold like landlords' fixtures and cannot be removed, and, therefore, the only way of obtaining any return for house property is by selling it in the unrestricted market. As soon as rent restriction is removed, landlords will again be willing to let houses at economic rentals.

This restriction on letting houses is having a disastrous influence on the supply of houses, and also in fettering enterprise, and thus increasing unemployment. The number of persons who are in a position to buy houses is limited, as protected tenants themselves admit, but the number of would-be tenants is unlimited. The abolition of rent restriction would, therefore, encourage building and afford employment. This leads to the observation that much weight should not be attributed to the protests of those tenants who are to occupy a privileged position for nearly five years after the Armistice. During the war the prices of certain essential articles of food were restricted, and if these restrictions had been continued in favour of a limited class that privileged class would have protested loudly whenever it was compelled to buy once again in the open market. But it is the open market which alone can be reverted to in the long run, and all privileges are granted at someone's expense, either at the expense of the retailer or other consumers, or of the taxpayer. So it is with rent restriction. The tenants of protected houses are privileged at the cost of the owners and at the cost of the ratepayers, for restricted rents mean restricted valuation for rating purposes, and, further, the laws of supply and demand are seriously interfered with. Organised steps throughout the country should be taken in good time to press on the Government the absolute necessity for not prolonging rent restriction one day beyond the time now fixed—June 24, 1923—a period already quite unnecessarily extended.

NEW BUILDINGS IN LONDON.

THE conversion of shops into bank premises is being undertaken for the National, Provincial, and Union Bank of England, Ltd., on the main Finchley-road, opposite Platt's-lane. The plans have been prepared by H. R. Palmer, architect to the Bank, and the works are being carried out by Messrs. F. Troy & Co., Ltd., of 194-6, Finchley-road, Hampstead. The artificial stonework is by Messrs. G. and A. Brown, Ltd., of Hammersmith.

Work is now in progress at the Mansions in Pont-street, for conversion into residential flats. The plans have been prepared and the work carried out under the superintendence of Messrs. J. F. Palser & Son, of South Audley-street. The main contractors are Messrs. F. Troy & Co., Ltd., of 194-6, Finchley-road; the heating is by Kinnells, and the lifts by Medways.

SOUTH KENSINGTON.—A new building of two floors having a frontage of 100 ft. to Pelham-street and 60 ft. to Brompton-road, is now in course of erection. When completed it will be fitted as dining rooms for the Metropolitan District Railway H.Q. Staff, providing accommodation for 300. The plans, which have been prepared by the Railway Co.'s architects' dept., show a building of steel and brickwork, with artificial stone string course, &c., reinforced concrete floors and a flat asphalte roof. The general contract is being carried out by Messrs. F. D. Huntington, Ltd., of 11, Hanover-square, W.1. The sub-contract for asphalting is not yet settled.

WESTMINSTER.—Extensive alterations are now in progress at the premises of the Army and Navy Co-Operative Syndicate, 105, Victoria-street. The work consists in taking out the entire ground floor frontage to Victoria-street and part of Artillery-row and replacing it with modern shop fronts of bronze with Portland stone columns and parapets. The plans have been prepared by Sir Aston Webb & Sons, of 19, Queen Anne's-gate, S.W.1. The general contract is being carried out by Messrs. Dove Bros., Ltd., of Cloudesley-place, N.1. The steelwork will be supplied by Messrs. Redpath, Brown & Co., Ltd., of 3, Laurence Pountney-hill, E.C.4. It is understood that it is not yet settled as to whether the builder shall construct the new shop fronts or let this work out to a subcontractor.

Messrs. Vicminster, Ltd., lessees of No. 18, Victoria-street, have decided to reconstruct the ground floor of their premises and convert it into two modern shops. The contract for this work has been placed with Messrs. J. Beer & Son, builders, of St. John's Wood, N.W. The plans have been prepared by Mr. King, architect to the Westminster City Council.

CROYDON.—A bungalow is in course of erection having a frontage of 35 ft. to Addiscombe Court-road, and a return of 39 ft. Addiscombe-road. It is being built for Mr. Gunmel, of "Shaftesbury," Havelock-road, East Croydon, for whom Mr. P. Richardson, architect, of Lower Addiscombe-road, has prepared the plans. Brick construction is being used and the roof will be composed of "Redhill" tiles. The exterior walls are to be finished in rough cast, using clean shingle. The main interior wall will also be of brickwork, but the party-walls are to be constructed with 3 in. by 9 in. by 18 in. breeze slabs. The accommodation will comprise three bedrooms, sitting-room, kitchen and usual offices, all on the ground floor. The builder is Mr. J. Pyke, of 37, Stroud-road, Woodside Green. Messrs. Harris & Bailey, builders' merchants, of 105, Lower Addiscombe-road, have supplied the breeze slabs and all other material except the tiles for the roof, which are being supplied by Messrs. The Redhill Tile Co., Ltd., of 47, High-street, Redhill.

PADDINGTON.—The ground floor and basement of the premises occupying Nos. 128–130, Edgware-road and part of Nutford-place are now being entirely reconstructed and will be rebuilt as a new branch for the National Provincial & Union Bank of England, Ltd., the surveyor to the bank, Mr. F. R. C. Palmer, F.R.I.B.A., of

15, Bishopsgate, E.C.2, has prepared the plans which provide for steel and brick construction with a Portland stone front, and the construction of strong rooms in the basement, and manager's office, &c., on ground floor. The general contract has been secured by Messrs. J. Simpson & Son, of 48, Paddington-street, W.

NEWINGTON.—Work is in progress on a site at Newington Butts for the erection of a hippodrome for the Electric Theatre, Ltd. The new building will be 130 feet long, 60 feet wide, and 45 feet in height, and will have a seating capacity of 1,500. The general contractors are Messrs. D. C. Somerville & Co., engineers and contractors, Victoria-streeet, London, and the subcontractors are the Somerville Barnard Construction Co., Ltd., of New Cross. The building is being erected to the plans of the architect, Mr. Cecil Masey, L.R.I.B.A.

BALHAM.—Messrs. John McManus, Ltd., of 237, Hammersmith-road, W. 6, are converting the premises, 141–143, High-street, Balham, into a café for the Aerated Bread Coy., Ltd. The plans have been drawn up by the Company's draughtsman, Mr. Brooks.

SIR EDWIN AIREY.

AMONG the names in the recent Honours list we note that of Mr. Edwin Airey, builder and contractor, of Leeds and London, who becomes a Knight. We have received the following particulars of Sir Edwin's career from one who knows him well. Sir Edwin Airey, who is still in his early forties, is well known, in Yorkshire especially, as the head of the very progressive firm of Wm. Airey & Son. The firm has built many schools in the Leeds district, and among other notable contracts they have carried out may be mentioned the West Riding Training College, the Leeds Corporation's Electricity Station, the Co-operative Wholesale Society's Clothing Factory at Leeds, and several other large factories and works.

During the war the firm constructed gun-testing ranges at Leeds, Birmingham and Melton Mowbray, besides an ordnance factory and the Second Northern General Hospital in Leeds. Sir Edwin Airey personally gave valuable assistance to the Ministry of Munitions, and also served as a technical adviser on the construction of cold storage plants to the Ministry of Food.

Since the Armistice Sir Edwin has given much attention to the housing problem. Realising the difficulty of getting houses quickly owing to the shortage of bricklayers, in 1919 he invented the "Duo-slab" system of concrete construction. His firm have built or are building some 1,400 houses for the Leeds Corporation on this system, and in other places several hundreds more have been built by other contractors under license.

In all matters affecting the building industry Sir Edwin takes a keen interest. He is a past-president of the Leeds Builders' Association, and is on the Executive of the Yorkshire Federation of Building Trade Employers. He is prominent in the Industrial League and Council, believing that the difficulties between capital and labour can be lessened, if not removed, by friendly conference between both sides. But this is only one side of his activity. Yorkshiremen, and especially his fellow-citizens of Leeds, know him as a man keenly interested in all measures for social welfare, and his support and help is generously given to many organisations which aim at educational, social, and religious advance.

Building Surveyors' and Inspectors' Association.

The annual general meeting of this Association will be held at Liverpool on June 17. Delegates will have an opportunity of visiting the new Cathedral of Mr. G. Gilbert Scott, R.A.

Exhibition of Painting and Decorating.

A craft exhibition under the auspices of the National Painters and Decorators Joint Education Committee of England and Wales is being held at the School of Building, Ferndale Road, Clapham. The exhibition is open until to-day (June 9).

RATES OF WAGES IN THE BUILDING TRADE.

The following are the rates of wages in the building trade in England and Wales. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Accrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Altrincham	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Ashton-under-Lyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Barnsley	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Barrow-in-Furness	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Barry	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Bath	1/5	1/5	1/5	1/5	1/5	1/5	1/5		1/0½	
Bedford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Birkenhead	1/10	1/10	1/10	1/10	1/10	1/10	1/10		1/5½	
Birmingham	1/8	1/8	1/8	1/8	1/8	1/9	1/8		1/3	
Bishop Auckland	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Blackburn	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Blackpool	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Bolton	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Bournemouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Bradford	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Bridgwater	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½		0/11½	
Brighton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Bristol	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Burnley	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Burton-on-Trent	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Bury	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Cambridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Cardiff	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Chatham	1/4	1/4	1/4	1/4	1/4	1/4	1/4		1/0	
Chelmsford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Cheltenham	1/5	1/5	1/5	1/5	1/5	1/5	1/5		1/0½	
Chester	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Chesterfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Colchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Coventry	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Darlington	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Derby	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Doncaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Dudley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Durham	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
East Glam. and Mon. Valleys	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Exeter	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½		1/0½	
Folkestone	1/4	1/4	1/4	1/4	1/4	1/4	1/4		1/0	
Gloucester	1/5	1/5	1/5	1/5	1/5	1/5	1/4		1/0½	
Grantham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Grays	1/8	1/8	1/8	1/8	1/8	1/8½	1/7		1/3	
Grimsby	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Great Yarmouth	1/4	1/4	1/4	1/4	1/4	1/4	1/4		1/0	
Guildford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Halifax	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Harrogate	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Hartlepools	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Hastings	1/4	1/4	1/4	1/4	1/4	1/4	1/4		1/0	
Hereford	1/5	1/5	1/5	1/5	1/5	1/5	1/4		1/0½	
Huddersfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Hull	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Ipswich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Lancaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Leeds	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Leicester	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Lichfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Lincoln	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Liverpool	1/10	1/10	1/10	1/10	1/10	1/10	1/10		1/5½	
Llanelly	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
London	1/8	1/8	1/8	1/8	1/8	1/8½	1/7		1/3	
Loughborough	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Luton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Maidstone	1/4	1/4	1/4	1/4	1/4	1/4	1/4		1/0	
Manchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Mansfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Merthyr Tydfil	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Middlesbrough	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Newcastle-on-Tyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Newport, Mon.	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Northampton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Norwich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Nottingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Oakham	1/5	1/5	1/5	1/5	1/5	1/5	1/5		1/0½	
Oldham	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Oxford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Plymouth	1/6	1/6	1/6	1/6	1/6	1/6	1/5		1/1½	
Pontypridd	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Portsmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Preston	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Reading	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Rochdale	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Rochester	1/4	1/4	1/4	1/4	1/4	1/4	1/4		1/0	
Rugby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
St. Albans	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
St. Helen's	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Scarborough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Sheffield	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Shrewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Southampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Southend-on-Sea	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Southport	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
South Shields	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Stockport	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Stockton-on-Tees	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Stoke-on-Trent	1/10	1/10	1/10	1/10	1/10	1/11	1/10		1/5	
Stroud	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4		1/0½	
Sunderland	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Swansea	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Swindon	1/5	1/5	1/5	1/5	1/5	1/5	1/4		1/0½	
Taunton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Torquay	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Tunbridge Wells	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Wakefield	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Walsall	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
Warrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
West Bromwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Wigan	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Windsor	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½		1/0½	
Wolverhampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8		1/3	
Worcester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	
York	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2	

(For rates of wages in the Building Trade in Scotland, see page 887.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

JUNE 12.—**Aberdeen.**—HOUSES.—Erection of nine blocks, each of two cottages, for the T.C. Mr. A. H. L. Mackinnon, architect, 245, Union-street, Aberdeen.

JUNE 12.—**Aylsham.**—COTTAGES.—Erection of four pairs of cottages at Colby and Tuttington, for the R.D.C. Mr. George J. Skipper, F.R.I.B.A., 7, London-street, Norwich.

JUNE 12.—**Belfast.**—BRIDGE.—Construction of a bridge and approaches in timber at Connswater-road, on the eastward side of the Musgrave Channel, Co. Down, for the Harbour Commissioners. Mr. T. S. Gilbert, Harbour Office, Belfast.

JUNE 12.—**Cardiff.**—HALL.—Erection of schoolroom at rear of present structure of mission hall, Swansea-street, Cardiff. Mr. E. J. Wilmott, 109, Portmanmoor-road, Cardiff.

JUNE 12.—**Essex.**—COTTAGES.—(1) Cottage at Elmstead, near Colchester; (2) single cottage at Thorpe-le-Soken, near Clacton, for the Essex C.C. Mr. Jno. Stuart, F.R.I.B.A., County Architect, Springfield Old Court, Chelmsford, Deposit £1 1s. each.

JUNE 12.—**Holbeck.**—PAINTING.—For painting, &c., of Poor Law Institution, for the Board of Guardians. Mr. George Diment, Clerk, Poor Law Offices, Holbeck, Leeds.

JUNE 12.—**Kirkcaldy.**—WORKSHOP, &C.—Erecting workshop and garage with boundary walls and relative works at Auchterderran, for the Kirkcaldy District Water Committee. Messrs. J. & A. Leslie & Reid, C.E., 72A, George-street, Edinburgh. Deposit £1.

JUNE 12.—**Plymouth.**—REPAIRS.—Repairs to 1, Newport-street, Stonehouse, for the T.C. Medical Officer of Health's (Housing) Department, Town Hall, East Stonehouse, Plymouth.

JUNE 12.—**Sheffield.**—PAINTING.—Painters' work at (1) Technical School of Art, (2) Domestic Subjects Centre, Meersbrook Park-road, for the T.C. Mr. F. E. P. Edwards, City Architect, Town Hall, Sheffield.

JUNE 12.—**Swindon.**—PAINTING.—Painting Clifton-street, Gilbert's-hill and Westcott Schools, for the T.C. Mr. W. Seaton, Secretary, Education Offices, Swindon.

JUNE 13.—**Acton.**—EXTENSION.—Erection of new cloak rooms and assembly room extension to the first-class swimming bath, High-street, for the B.C. Mr. Wm. Hodson, Town Clerk, Municipal Offices, Acton, W.3. Deposit £1 1s.

JUNE 13.—**Belfast.**—ADDITION.—Erection of additional story on pavilion at Infectious Diseases Hospital, for the T.C. Mr. R. B. Roe, quantity surveyor, 17, Wellington-place, Belfast.

JUNE 13.—**Bristol.**—CONVENIENCE.—Erection of a public convenience at Clifton Down, for the T.C. Mr. Lessel S. McKenzie, City Engineer, 63, Queen-square, Bristol. Deposit £2 2s.

JUNE 13.—**Bristol.**—FOOTWAY.—Erection of an inclined footway to Silverthorne-lane footbridge, Feeder-road, for the T.C. Mr. Lessel S. McKenzie, City Engineer, 63, Queen-square, Bristol. Deposit £2 2s.

JUNE 13.—**Croydon.**—BUILDING.—Erection of a building to receive pulverising plant on the South Norwood Sewage Farm, S.E. 25, for the County Borough Council. Borough Engineer, Town Hall, Croydon. Deposit £2 2s.

JUNE 13.—**Heanor.**—HOUSES.—Erection of four houses, for the U.D.C. Mr. A. G. Wheeler, architect, Eastwood. Deposit £1 1s.

JUNE 13.—**London.**—DRY GLAZING.—For dry glazing of a roof at the Regent's Park Power Station, Longford-street, St. Pancras, N.W., for the B.C. Electricity Department.

JUNE 13.—**Newcastle-on-Tyne.**—EMPLOYMENT EXCHANGE.—Erection of a temporary employment exchange at Newcastle-on-Tyne, for the Commissioners of H.M. Office of Works. Contracts Branch, H.M. Office of Works, King Charles-street, S.W.1. Deposit £1 1s.

JUNE 13.—**Newcastle-on-Tyne.**—FLATS.—Erection of a block of 36 flats in Watson-street, Walker, for the T.C. Housing Architect, 18, Cloth Market, Newcastle. Deposit £1 1s.

JUNE 13.—**Oxnop.**—BRIDGE.—Building of masonry bridge at Oxnop Beck, for the North Riding of Yorks C.C. County Surveyor, County Hall, Northallerton.

JUNE 13.—**Plymouth.**—HOUSES.—Erection of 68 houses, for the T.C. Mr. T. Peirson Frank, Borough Surveyor, Municipal Offices, Plymouth. Deposit £2 2s.

JUNE 13.—**St. Pancras.**—GLAZING.—For dry glazing of a roof at the Regent's Park Station, Longford-street, for the B.C. Chief Electrical Engineer, 57, Pratt-street, Camden Town.

JUNE 13.—**Tredegar.**—BUNGALOW.—Erection of a bungalow at the Nantybwch Waterworks, for the U.D.C. Mr. D. Walter Davies, Gas and Water Department, Tredegar.

JUNE 14.—**Acton.**—REPAIRS, &C.—For internal decorative work and repairs at Beaumont Park School, South Acton Girls' and Infants' School, Acton Infants' School, Southfield-road Cookery Centre; and electrical work at Central Hall, Priory Schools, for the Borough Education Committee. The Engineer and Surveyor, Municipal Offices, Acton, W.3.

JUNE 14.—**Cefn Coed.**—PAINTING.—Painting of Tabor Chapel, Cefn Coed. Mr. Tallesin Griffiths, 8, Vaynor Villas, Cefn Coed.

JUNE 14.—**Dewsbury.**—ALTERATIONS.—Alteration and addition to dwelling-house. Mr. M. Watssman, 18, Wilson Wood-street, Batley Carr.

JUNE 14.—**Haslingden.**—HOUSES.—Erection of twelve brick houses on Long Shoot side, for the T.C. Borough Surveyor, Municipal Offices, Haslingden. Deposit £1 1s.

JUNE 14.—**Honley.**—PAINTING.—For painting, colour-washing, &c. (a) Honley Church, (b) schools, school house, and six cottages, (c) vicarage, (d) parish room. Parochial Church Council Secretary, Mr. N. Kinder, Co-operative-terrace, Honley.

JUNE 14.—**Leeds.**—PUMPING HOUSE, &C.—Erection of a new pumping station, lime-mixing house, lime hoist, lime unloading room, transformer, and switch-gear rooms, &c., at the High Level Works, Thorpe Stapleton estate, for the T.C. Mr. Geo. A. Hart, 8, Park-square, Leeds. Deposit £2.

JUNE 14.—**London.**—REPAIRS, &C.—For repairing and maintaining police stations, police courts, houses, buildings, &c., situated in North-Eastern, North-Western and Southern Areas of the Met. Police Dist. for twelve months from August 1, 1922. The Police Surveyor, New Scotland Yard, S.W.1. Deposit £1 1s.

JUNE 14.—**London, E.**—ALTERATIONS & PAINTING.—Alterations and painting, etc., to be done at The Netherlands Club, Spitalfields, E. The Secretary, The Netherlands Club, 25, Bell-lane, Spitalfields. Deposit £1 1s.

JUNE 14.—**Warrington.**—PAINTING.—For painting and decorating of the various schools, Maternity Home, Gymnasium, Museum, and Hefferston Grange Sanatorium, for the T.C. Mr. Andrew M. Ker, Borough Engineer, Warrington. Deposit £2 2s.

JUNE 14.—**Yeadon.**—REPAIRS, &C.—Reconstruction of class-room floors and repairs to Yeadon South View Council School. Education Department, County Hall, Wakefield.

JUNE 15.—**Doncaster.**—BUILDINGS.—Erection of an administrative block and office building, &c., at Belle Vue, for the T.C. Mr. R. E. Ford, Race Dept., 3, Priory-place, Doncaster. Deposit £1 1s.

JUNE 15.—**Gillingham.**—EXTENSION.—For extension of the Franklin Rooms, for the directors of the Gillingham Masonic Club Co. Mr. E. J. Hammond, architect, 21, Balmoral-road, Gillingham, Kent.

JUNE 15.—**Manchester.**—SHED.—Erection of a store shed at the Bradford-road Station, for the Gas Department. Mr. Godfrey W. Kaye, Secretary, Gas Department, Town Hall, Manchester. Deposit £1 1s.

JUNE 15.—**Worthing.**—HOUSES.—Erection of nine blocks of four houses, comprising 20 non-parlour type and 16 parlour type houses on the South Farm-road site, for the Borough Council. Mr. S. C. Phillips, Municipal Offices, Worthing. Deposit £3 3s.

JUNE 16.—**Barking.**—CONVENIENCE.—Construction of an underground convenience at the Broadway, for the U.D.C. Surveyor, Clock House-chambers, East-street, Barking.

JUNE 16.—**Birmingham.**—PAINTING.—Exterior painting of the various buildings comprising the Dudley-road Hospital, for the Board of Guardians. Mr. James Curtis, Clerk, Union Offices, Edmund-street, Birmingham. Deposit £1 1s.

JUNE 16.—**Norwich.**—HOUSES.—Erection of 24 houses on the Mile Cross Estate, for the Corporation. Mr. Stanley J. Wearing, A.R.I.B.A., 3, Redwell-street, Norwich.

JUNE 16.—**Wigan.**—PAINTING.—Painting at various schools, for the T.C. Director of Education, 11, Standishgate, Wigan.

JUNE 17.—**Bristol.**—PAINTING.—For the painting, colouring, &c., of certain schools, for the Education Committee. Mr. Peter Addie, The Exchange, Corn-street, Bristol. Deposit £1 1s.

JUNE 17.—**Broughty Ferry.**—ALTERATIONS.—Alterations and additions at Broughty Ferry Post Office, for H.M. Office of Works. Architect, H.M. Office of Works, 4-5, Drumsheugh-gardens, Edinburgh. Deposit £1 1s.

JUNE 17.—**Carnaby.**—HOUSES, &C.—Erection of two houses and repairs to farm buildings at Wilsthorpe Farm, for the East Riding of Yorkshire C.C. County Land Agent, County Hall, Beverley.

JUNE 17.—**Catchgate.**—PAINTING, &c., at Independent Methodist Church. Mr. W. J. Lowden, 8, Evelyn-terrace, Stanley.

JUNE 17.—**Cudworth.**—PAINTING.—Redecoration of the Albert W.M. Club and Institute, Pontefract-road, Cudworth, near Barnsley. J. R. Collins, Secretary of the Club.

JUNE 17.—**Edinburgh.**—SWINGS.—Providing and fitting up swings in certain of the public playgrounds in the City. Mr. James A. Williamson, City Architect, City Chambers, Edinburgh.

JUNE 17.—**Hove.**—PAINTING.—External painting of Public Library, for the T.C. Mr. H. H. Scott, Borough, Surveyor, Hove.

JUNE 17.—**Huddersfield.**—PAINTING.—Painting of the exterior wood and ironwork at the St. Paul's Church Schools. Mr. Wm. Kaye, Secretary to the Governors Hungerford House, Edgerton.

JUNE 17.—**Staines.**—PAVILION.—Erection of a bathing pavilion on the Ashby Recreation Ground, Wraysbury-road, for the U.D.C. Mr. E. J. Barrett A.M.I.C.E., Surveyor, Town Hall, Staines.

JUNE 17.—**Wakefield.**—PAINTING.—Internal painting County Hall, Wakefield. West Riding Architect, County Hall, Wakefield.

JUNE 19.—**Acton, W.3.**—HOUSES.—Erection of six pairs of brick parlour-type houses on the East Acton Housing Estate, for the Borough Council. The Town Clerk, Municipal Offices, Acton, W.3.

JUNE 19.—**Ashford, Kent.**—CLUB PREMISES.—Erection of new premises for the Elwick Club, Ltd., at Ashford, Kent. Mr. Edwin A. Jackson, Architect, Ashford, Kent. Deposit £1 1s.

JUNE 19.—**Charlton.**—ALTERATIONS.—For alteration and addition at the Conservative Club, Church-lane. Mr. J. M. Rokes, Secretary, Club, Charlton.

JUNE 19.—**Chester.**—HOUSES.—Erection of 18 non-parlour houses at Buddicom Park, for the T.C. Mr. J. H. Dickson, Town Clerk, Town Hall, Caeste Deposit £2 2s.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Brick-layers.	Car-penters, Joiners.	Plas-terers.	Slaters.	Plum-bers.	Painters.	Masons' Labourers.	Brick-layers' Labourers.	Plas-terers' Labourers.
Aberdeen	1/7½	1/10½	1/7½	1/7½	1/8	1/9	1/7	1/2 to 1/4		
Airdrie	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½		
Alexandria	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½		
Arbroath	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	1/5½		
Ayr	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/5½ to 1/6½		
Bathgate	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/3		
†Blairgowrie	1/9	1/11½	1/9	1/9	1/9	1/9	1/7	—		
Bo'ness	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/-	1/8		
Coatbridge	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½		
Dumbarton	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/5		
Dumfries	1/6	1/6	1/6	1/6	1/6	1/8	1/8	1/2	1/2½	1/3½
Dundee	1/8	1/8	1/8	1/8	1/8	1/10	1/9	1/5		
Dunfermline	2/0½	2/0½	2/0	2/0	2/0½	2/0½	—	1/7½		
Duns	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0		
Edinburgh	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½		
Falkirk	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½		
Fort William	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/2½		
Galashiels	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	—	—		
Glasgow	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/5		
Greenock	1/10	1/10	1/10	1/10	1/10	1/9½	1/9	1/5½		
Hamilton	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/7½		
Hawick	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Helensburgh	2/0½-1/10½	2/0½-1/10½	2/0-1/10	2/0½-1/10½	2/0½-1/10½	2/0-1/10	1/9	1/7½ to 1/5½		
Inverness	1/6½	—	1/6	1/7	1/6½	1/9	1/6	1/0 to 1/3		
Kilmarnock	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/1	1/7		
Kirkcaldy	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/6½		
Kirkwall	1/9	1/9	1/9	1/9	1/9	1/9	—	1/2		
Lanark	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7		
Motherwell	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½		
Perth	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/4		
Stirling	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/5		
Stirlingshire (Eastern District)	2/0	2/0	2/0	2/0	2/0	2/0	1/9	1/7		
Wishaw	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½		

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 886. † For housing work only; for other work, Masons 1/6, Painters 1/9, Labourers 8d. to 1/-.

JUNE 19.—**Greenwich.**—DISINFECTING STATION.—Erection of a cleansing and disinfecting station at the Tunnel-avenue Depot, for the B.C. Borough Engineer, Town Hall, Greenwich.

JUNE 19.—**Keighley.**—EXTENSION.—Extension of smallpox hospital, Stanbury, for the Keighley and Bingley Joint Hospital Board. Mr. F. Atkinson, M.S.A., Old Bank-chambers, Bingley.

JUNE 19.—**Lambeth.**—OFFICE, &c.—Erection on the Holderness House Estate of a building consisting of an office, store and self-contained flat, for the Council of the Metropolitan Borough of Lambeth. Mr. Bruce Penny, Town Clerk, Lambeth Town Hall, Brixton-hill, S.W.2. Deposit £3 3s.

JUNE 19.—**Leeds.**—PAINTING.—For the painting and cleaning of schools and other buildings during the Midsummer vacation. Education Offices (Architect's Section), Calverley-street, Leeds.

JUNE 19.—**London, W.**—ALTERATIONS, &c.—For alterations, painting and other works to be carried out at St. Marylebone Workhouse, Northumberland-street, for the Guardians of the Poor. Messrs. Constantine & Vernon, architects, 82, Mortimer-street, Regent-street, W. Deposit £1.

JUNE 19.—**Morley.**—MORTUARY.—Erection of a mortuary, for the T.C. Mr. F. Turner, Borough Engineer, Town Hall, Morley. Deposit 10s.

JUNE 19.—**Staines.**—HOUSES.—Erection of 64 houses at Bedfort, Sipson and Stanwell, for the R.D.C. Mr. G. W. Manning, Architect, Council Offices, London-road, Ashford.

JUNE 19.—**West Ham.**—CLEANSING, PAINTING AND REPAIRING.—Cleansing, painting and repairing various schools, internally, during the summer vacation, for the County Borough of West Ham Education Committee. Mr. John H. Jacques, Lic.R.I.B.A., Architect to the Committee, 2, Fen-court, Fenchurch-street, E.C.3. Deposit £1.

JUNE 19.—**Whitefield.**—HOUSES.—Erection of 26 houses and construction of street, &c., for the U.D.C. Mr. George M. Denton, Architect, Council Offices, Whitefield, Lancs. Deposit £2 2s.

JUNE 20.—**Birmingham.**—WELFARE CENTRE.—Erection of a welfare centre in Hunter's-road, Hockley, for the T.C. Mr. Anthony Rowse, 117, Colmore-row, Birmingham. Deposit £2.

JUNE 20.—**West Ham.**—PAINTING.—For the painting, cleansing, &c., of public buildings, for the B.C. Borough Engineer, Town Hall, West Ham, E. 15.

JUNE 21.—**Bedwellty.**—PIGGERY.—Rebuilding the piggery at the Bedwellty Union, for the Guardians. Mr. H. J. C. Shepard, Clerk, Union Offices, Tredegar. Deposit £1 1s.

✱JUNE 21.—**London.**—CLEANING, PAINTING AND REPAIRS.—Cleaning, painting and repairs at South-Eastern Ambulance Station, New Cross-road, S.E.14, the North-Western Fever Hospital, Lawn-road, Hampstead, N.W.3, the Brook Fever Hospital, Shooter's Hill, Woolwich, S.E.18, and at the North-Eastern Fever Hospital, St. Anne's-road, Tottenham, for the Metropolitan Asylums Board. Office of the Board, Embankment, E.C.4. Deposit £1.

✱JUNE 21.—**Tooting, S.W.**—GLAZING.—Patent glazing, &c., to roofs of eight verandahs at Tooting Bec Mental Hospital extensions, Church-lane, S.W. 17, for the Metropolitan Asylums Board. Office of the Board, Embankment, E.C. 4. Deposit £1.

✱JUNE 22.—**Barnet.**—HOUSES.—Erection of 12 houses (Type "A") and contingent works on the Underhill Housing Estate, for the U.D.C. Engineer and Surveyor, Barnet. U.D.C. Municipal Offices, Barnet. Deposit £2 2s.

✱JUNE 22.—**Wombwell.**—HOUSES.—Erection of 10 (Type "A") houses on a site situate in King's-road, Wombwell, for the U.D.C. Mr. D. H. Roberts, M.S.A., Architect, Park-street, Wombwell. Deposit £2.

JUNE 24.—**Bradford.**—PAINTING.—For painting work at the King's Arcade, Market-street, for the T.C. City Architect, Town Hall, Bradford.

JUNE 24.—**Yeovil.**—CONVENIENCE.—Construction of underground convenience, for the T.C. Mr. A. J. Price, Borough Surveyor, Yeovil. Deposit, £2.

JUNE 26.—**Durham.**—VARIOUS WORKS.—(1) Durham Johnston Secondary School, alterations; (2) Cassop Council School, alterations to out-offices and drainage; (3) Chilton Buildings Council School, reconstruction of boundary walls and playshed, for the Durham C.C. Mr. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

JUNE 26.—**King's Lynn.**—REPAIRS, &c.—(1) Internal painting and colouring St. James's Girls' and Junior Schools; (2) internal painting and decorating the Stanley Buildings, St. James's-road; (3) repairs to stone staircase at Technical Institute. Mr. A. J. Smith, Borough Surveyor, King's Lynn.

JUNE 26.—**London.**—CONCRETE SWING FRAMES, &c.—Supply and erection of gymnastic swing frames, giant stride poles and horizontal bar posts in reinforced concrete, at various parks and open spaces, for the L.C.C. Chief Officer of the Parks Department, New County Hall, S.E. 1.

JUNE 27.—**Brentford.**—ALTERATION.—Alteration to Nursery (Warkworth House), for the Board of Guardians. Mr. F. E. Harmsworth, Clerk, Toolands House, 34, Twickenham-road, Isleworth, Middlesex.

JUNE 27.—**Jarrow.**—PAINTING.—Painting, &c., at the Central Council, Grange, Dunn-street and Bede Burn Council Schools and the St. Bede's R.C. Junior School. Mr. E. R. Knaggs, Clerk of Works, Central Council School, Jarrow.

✱JUNE 29.—**Southampton.**—COTTAGES, PIGGERIES, &c.—Erection of two pairs of cottages, piggeries, &c., at Titchfield, for the C.C. Mr. A. L. Roberts, County Architect, The Castle, Winchester. Deposit £1 1s.

JUNE 30.—**Birmingham.**—BATHS.—Erection of baths at King's Heath and Harborne, for the T.C. Mr. R. Hoggins, Superintendent Engineer, Kent-street, Birmingham. Deposit £2.

JUNE 30.—**Milford Haven.**—DWELLING HOUSE.—For alterations and converting house outbuildings into a dwelling-house at Point Hakin, for Mr. Munning. H. Veder Elford, architect and surveyor, Milford Haven.

JUNE 30.—**Monmouthshire.**—COTTAGES, &c.—(a) Cottage on smallholding near Crick, (b) cottage on holding near the village of Caerwent, (c) small set of farm buildings on holding one mile from Portskewett Station, for the Monmouthshire Agricultural Committee. Mr. A. Every-Clayton, County Land Agent, No. 2, Gold Tops, Newport, Mon.

JUNE 30.—**Panteg.**—FARM BUILDINGS.—(a) Farm buildings at Sluvad Farm, Panteg, (b) farm buildings at Sluvad Farm, Panteg, (c) farm house and buildings in Llanishen, for the Monmouthshire Agricultural Committee. Mr. A. Every-Clayton, County Land Agent, 2, Gold Tops, Newport, Mon.

JULY 1.—**Christchurch.**—INFIRMARY.—Erection of an Infirmary at the Institution, Fairmile House, for the Guardians of Christchurch Union. Mr. A. Druitt, Clerk to the Guardians, Christchurch. Deposit £5.

JULY 12.—**Carlisle.**—PAINTING.—Painting and other works required to be done in four of the elementary schools, for the T.C. Mr. Henry C. Marks, Surveyor, Fisher-street, Carlisle.

NO DATE.—**Abercanaid.**—PAINTING, &c.—For painting, papering and adding lavatories to Glanyrafon, Chapel-street, Abercanaid. Mr. A. North, Wernlas, Pentrebach, Merthyr.

NO DATE.—**Aberystwyth.**—CAMP STRUCTURES.—Erection of structures in connection with Territorial Camp to be held in August. Adjutant, Welsh Divisional R.E., Drill Hall, Park-street, Cardiff.

NO DATE.—**Burnley.**—HOUSING, &c.—For conversion of Glen View house into semi-detached villas. Also erection of billiard hall for 39 tables. Messrs. Lancaster, Son & Parkinson, architects, 16, Nicholas-street, Burnley.

NO DATE.—**Doncaster.**—HOUSE.—Erection of detached house in Axholme-road. Messrs. Allen & Hickson, architects, 52, Hall-gate, Doncaster.

NO DATE.—**Nantybwch.**—BUNGALOW.—For erection of a bungalow at Nantybwch Water Works, for Tredegar U.D.C. Mr. O. W. Davies, Water Works Manager's Office, Tredegar.

NO DATE.—**Saltley.**—COTTAGES.—Erection of pair of cottages at Saltley, for the Birmingham Tame and Rea District Drainage Board. Mr. John D. Watson, Engineer, Erdington Park, Birmingham.

FURNITURE, MATERIALS, etc.

JUNE 12.—**Camberwell.**—WOOD PAVING BLOCKS.—Supply and delivery of (1) 450,000 creosoted deal wood paving blocks delivered to South Croxted-road, Dulwich, S.E.21; and (2) for the supply and delivery of about 93,000 creosoted deal wood paving blocks delivered to St. James's-road, Old Kent-road, S.E.15, for the Borough Council of Camberwell. Mr. Frederick J. Slater, Borough Engineer, Town Hall, Camberwell, S.E.5.

JUNE 12.—**Dublin.**—STORES.—Supply of stores to the Dublin United Tramways Co. for six months. Mr. G. M. Harriss, Manager, 9, Upper Sackville-street, Dublin. Charge 2s. 6d.

JUNE 12.—**Govan.**—STORES.—Supply of stores to the Trustees of the Clyde Navigation. Supt. of Stores, the Graving Dock, Govan.

JUNE 12.—**Newhaven.**—KERBING.—Supply of 524 yds. lineal of kerbing to the U.D.C. Mr. Chas. G. Mainwood, Clerk, Newhaven.

JUNE 13.—**Hammersmith.**—CHAIRS.—Supply to the Public Baths of 500 bentwood chairs (16 in. wooden seats). Mr. Leslie Gordon, Town Clerk, Town Hall, Hammersmith, W.6.

JUNE 13.—**London.**—MATERIALS.—Supply to the Metropolitan Asylums Board of engineers' ironmongery, oils, window glass, &c. Office of the Board, Embankment, E.C.

JUNE 13.—**Portsmouth.**—STORES.—Supply of stores to the Tramways Department. Mr. V. G. Lironi, Engineer, Vivash-road, Fratton, Portsmouth.

JUNE 14.—**Ely.**—ROAD MATERIALS.—Supply of broken granite, for the U.D.C. Mr. W. McKelvie, City Surveyor's Office, Ely.

JUNE 14.—**Gravesend.**—GRANITE.—Two hundred tons of Jersey granite spalls, for the Board of Guardians. Mr. W. J. King, Clerk, 13, Victoria-place, Stone-street, Gravesend.

JUNE 14.—**Tottenham.**—MATERIALS.—Supply to the U.D.C. of (*a*) road materials; (*b*) road brooms; (*c*) tar and asphalte paving; (*d*) patent stone flags. Mr. Reginald C. Graves, Town Hall, Tottenham, N.15.

JUNE 15.—**St. Austell.**—MATERIALS.—Supply of Portland cement for building boundary walls, for the R.D.C. Mr. A. J. Blight, Trelowth, St. Austell.

JUNE 15.—**West Ham.**—MATERIALS.—Supply of builders' materials, &c., to the Board of Guardians. Clerk, Offices, Union-road, Leytonstone, E.

JUNE 17.—**Hindley.**—GRANITE SETTS.—Supply of 500 tons of granite setts to the U.D.C. Mr. O. P. Abbott, Surveyor, Council Offices, Hindley.

JUNE 19.—**Bootle.**—KERBS.—Supply of kerbs to the T.C. Borough Engineer, Town Hall, Bootle.

JUNE 21.—**London.**—MATERIALS.—Supply to the Bombay, Baroda and Central India Railway Company of (1) creosoted Baltic red pine sleepers; (2) steel material; (3) wrought iron. Mr. S. G. S. Young, Secretary, The White Mansion, 91, Petty France, Westminster, S.W. Charge, £1 for 1 and 2, and 10s. for 3.

JULY 14.—South Africa.—PORTLAND CEMENT.—For the supply of 100,000 bags, or 50,000 casks, of Portland cement, of quality equal to British standard specification, for the Kamanassie Irrigation Board, Oudtshoorn Department (Room 41), 35, Old Queen-street, London, S.W.1.

ENGINEERING, IRON AND STEEL.

JUNE 12.—**Edinburgh.**—SHEETING.—Erection of galvanised corrugated sheeting to form back of existing shed at the Corporation Loading Bank, Dundee-terrace. Mr. J. A. Williamson, A.R.I.B.A., City Chambers, Edinburgh.

JUNE 13.—**Dartford.**—LIGHT RAILWAY.—Reconstruction of portion of the light railway track of the U.D.C. Surveyor, Council Offices, Dartford.

JUNE 13.—**London.**—MATERIALS.—Supply to the Metropolitan Water Board of (8) iron and steel; (10) lead, brass, copper, zinc and glass; (20) screw-down stop ferrules and valves; (21) sluice valves, bronze and w.i. spindles. Chief Engineer, New River Head, 173, Rosebery-avenue, E.C. 1.

JUNE 13.—**Toronto.**—PUMP.—Supply of 4,000,000 gallon centrifugal pump, to the T.C. Department of Overseas Trade, 35, Old Queen-street, S.W.

JUNE 14.—**Barnoldswick.**—HEATING APPARATUS.—Extensions and alterations to heating apparatus at Barnoldswick Gisburn-road Council School. Education Department, County Hall, Wakefield.

JUNE 14.—Hackney.—PIPES, &c.—Supply of steam, water and other pipes and valves, to the T.C. Borough Electrical Engineer, 306, Mare-street, Hackney. Deposit £5 5s.

JUNE 14.—**Manchester.**—RADIATORS, &c.—Supply of radiators, wrought iron tubes and thermostatic valves to the various establishments of the Board of Guardians. Mr. Hargreaves, Superintendent of Works, Union Offices, All Saints', Manchester.

JUNE 14.—**Romford.**—FENCING.—Supply and erection of wrought-iron fencing and gate at Recreation Ground, for the U.D.C. Surveyor, 73, South-street, Romford. Deposit £1 1s.

JUNE 15.—**Cleethorpes.**—BATHING POOL.—Construction of a reinforced concrete bathing pool (on the indented bar system), for the U.D.C. Mr. Leonard W. Pye, A.M.Inst.C.E., Surveyor, Council Offices, Cleethorpes. Deposit £5 5s.

JUNE 15.—**Hull.**—ROOF.—For the steel roof work required in the extensions for the Electricity Works, for the T.C. Mr. F. W. Bricknell, City Engineer, Guildhall, Hull. Deposit £1.

JUNE 15.—**Preston.**—LOCOMOTIVE, &c.—Supply to the T.C. of (*a*) one 3 ft. gauge tank locomotive; (*b*) on 4 ft. 8½ ins. gauge locomotive steam crane. Wate Engineer, Tithebarn-street, Preston.

JUNE 17.—**Enfield.**—STEAM ROLLERS.—Supply of two 10-ton (empty) steam rollers, for the U.D.C. Mr. T. W. Scott, Clerk, Public Offices, Enfield, Middlesex.

JUNE 19.—**Argentina.**—BRIDGES.—Supply and erection of suspension bridges for local authorities. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

JUNE 19.—**Chester.**—BRIDGE FOUNDATIONS.—Construction of the anchorages and foundations to the Queen's Park bridge, for the T.C. Mr. Charles Greenwood, City Engineer, Town Hall, Chester. Deposit £1 1s.

JUNE 20.—**Leeds.**—METERS, &c.—Supply to Gas Committee of dry gas meters, castings, and cast iron pipes. Mr. C. S. Shapley, Engineer, Gas Offices, Market Hall, Leeds.

JUNE 20.—**London.**—LATHES, ETC.—Supply to the Madras and Southern Mahratta Railway Co. of (1) 8 lathes, 8½ in. centres, sliding, surfacing and screw cutting; (2) girder bridges (10 spans of 60 ft.), (3) 74 tons galvanised corrugated sheets (steel or iron). Secretary, 25, Buckingham Palace-road, Westminster, S.W.1. Charge £1 1s. each.

JUNE 21.—**London.**—MAINS.—For installation of new steam and condense mains, &c., in concrete trench, at North-Western Fever Hospital, Lawn-road, Hampstead, for the Metropolitan Asylums Board. Office of the Board, Embankment, E.C. 4. Deposit £1.

JUNE 21.—**Manchester.**—BOILER.—Supply and erection, at the City Abattoirs, of one Cornish or Lancashire boiler (approx.) 16 ft. × 5 ft. 6 in. diameter, suitable for working pressure of 100 lbs. per sq. in. Mr. P. M. Heath, Town Clerk, Town Hall, Manchester.

JUNE 21.—**Manchester.**—LAUNDRY PLANT.—Supply at the Newton Heath and Osborne-street public washhouses of washstalls, hydro extractors, drying horses, with heater fan, &c. City Architect, Town Hall, Manchester. Deposit 10s. 6d.

JUNE 23.—**London.**—STEEL, &c.—Supply to the High Commissioner for India of steel, cable, &c. Director-General, India Store Department, Belvedere-road, Lambeth, S.E. 1.

JUNE 24.—**Gosport.**—BRIDGE.—Construction of new ferro-concrete bridge, for the U.D.C. Surveyor, Gosport. Deposit £2 2s.

JUNE 28.—**Johannesburg.**—LAMPS.—Supply of electric lamps and fittings, for the T.C. Department of Overseas Trade, 35, Old Queen-street, S.W.

JUNE 29.—**South Africa.**—STEEL BUILDINGS.—Supply to the South African Railways and Harbours of steel frame buildings for power station. High Commissioner for the Union of South Africa, Trafalgar-square, W.C.2. Deposit £5 5s.

JULY 1.—**Croydon.**—ENGINE.—Supply and setting to work of a steam pumping engine at the Surrey-street Waterworks, for the T.C. Borough Engineer, Town Hall, Croydon. Deposit £1 1s.

✱JULY 15.—**Epsom, Surrey.**—(1) Installation of electric wiring of the buildings, motor, telephones, &c.; (2) supply and fixing of overhead electrical conductive and main cables, switchboards, &c.; (3) installation of laundry plant; (4) installation kitchen plant; (5) installation bakery plant, at the eleventh Mental Hospital, Epsom, Surrey, now in course of erection, for the L.C.C. Asylums Engineer of the Council, at Gloucester House, 19, Charing Cross-road, W.C.2. Deposit £5 each for (1) and (2) and £2 for (3), (4) and (5).

JULY 15.—**The Bahamas.**—DREDGING.—For the dredging of an entrance channel and mooring basin in the Harbour of Nassau, New Providence, Bahama, for the Government. Crown Agents for the Colonies, 4, Millbank, Westminster, S.W.1. Deposit £10.

AUGUST 1.—**Siam.**—RAILWAY CARRIAGES.—For the supply of 25 underframes for bogie carriages, for the Department of State Railways. Messrs. C. P. Sandberg, 40, Grosvenor-gardens, S.W. 1. Charge £2.

OCTOBER 31.—**New South Wales.**—BRIDGE.—Construction of the superstructure and substructure of a cantilever bridge across Sydney Harbour from Dawes Point to Milson's Point, for the Government of New South Wales. Agent-General for New South Wales, Australia House, Strand, London, W.C.2.

NO DATE.—**Ecuador.**—WHARF.—Construction of the Custom House wharf for the Port of Guayaquil. Consulate-General of Ecuador, 23, College-hill, Cannon-street, E.C. 4.

NO DATE.—**Sweden.**—DRAIN PIPES.—Supply to Stockholms Vattenledningsverk, Stockholm, of asphalted cast-iron pipes: 1,200 metres, 40 cms. dia. straight pipes, 1,000 metres, 20 cms. dia. straight pipes, 1,500 metres, 15 cms. dia. straight pipes, 3,000 metres, 10 cms. dia. straight pipes, together with certain joints, bends and junctions. Department of Overseas Trade, 35, Old Queen-street, London, S.W. 1.

ROAD, SANITARY, AND WATER WORKS.

JUNE 12.—**Birmingham.**—GAS MAINS, &C.—Laying, &c., mains and services for the distribution of town's gas, for the T.C. Distributing Engineer, Gas Department, Council House, Birmingham. Deposit £2 2s.

JUNE 12.—**Manchester.**—ROADS.—Resurfacing Barlow Moor and Wilmslow-roads, for the T.C. District Surveyor, Town Hall, Manchester. Deposit £1 1s.

JUNE 12.—**Southgate.**—SEWER.—Making-up road and constructing surface water sewer at Hedge-lane, Palmer's Green, for the U.D.C. Mr. R. Phillips, Council Offices, Palmer's Green, N.13.

JUNE 13.—**Maesteg.**—ROADS.—Widening of Duffryn-road, Caerau, for the U.D.C. Mr. S. J. Harpur, Talbot-street, Maesteg. Deposit £2 2s.

JUNE 14.—**Barnsley.**—ROADS.—Making of private streets and back roads, for the T.C. Borough Surveyor, Fairfield House, Barnsley.

JUNE 14.—**Edinburgh.**—DYKE.—Taking down and rebuilding the March Dyke between Bloomiehall Park and the Baberton Golf Course, for the T.C. Mr. James A. Williamson, City Architect, City Chambers, Edinburgh.

JUNE 14.—**Ripon.**—DRAINAGE.—For drainage works at cemetery, for the T.C. City Surveyor, Town Hall, Ripon.

JUNE 14.—**West Riding of Yorks.**—ROADS.—Asphalting to playgrounds at the following schools: Mirfield Knowle Council School; Rawcliffe Council School; Wath-upon-Dearne: Park-road Council School, Victoria Council School. Education Department, County Hall, Wakefield.

JUNE 15.—**Oswestry.**—WATERWORKS.—Laying of 5-in. and 4-in. water mains, the construction of a reservoir, &c., at Weston Rhyn, for the R.D.C. Messrs. Berrington, Son & Watney, Prudential-chambers, Lichfield-street, Wolverhampton. Deposit £5 5s.

JUNE 17.—**Easington.**—BURIAL GROUND, ETC.—Laying-out of a new burial ground, erection of caretaker's house and office, and extensions to an existing burial ground, for the Parish Council. Mr. E. N. Simpson, Clerk, South View, Easington, Easington Colliery, Co. Durham. Deposit £2 2s.

JUNE 17.—**Leeds.**—PLUMBING.—For plumbers' work (three months), at Calverley Hospital, for the Joint Hospital Board. Mr. W. R. Wilson, 13, Park-square, Leeds.

JUNE 17.—**Wakefield.**—ROADS.—For the re-making and re-surfacing of roads at County Hall and Central Stores, Wakefield. West Riding Architect, County Hall, Wakefield.

JUNE 20.—**Barnsley.**—STREET WORK.—For the making up of five streets at Barnsley. Mr. H. Taylor, architect, Fairfield House, Barnsley.

JUNE 20.—**Gloucester.**—ROADS.—For (a) reconditioning Jarrah wood blocks, (b) supplying 8,000 square yards of new deal wood blocks, (c) providing and laying about 8,622 square yards of deal wood block paving. Mr. E. W. A. Carter, City Surveyor, Guildhall, Gloucester. Deposit £2 2s.

JUNE 26. — **Middlesbrough.** — TRAMWAY TRACK AND ROAD PAVING.—For the laying of a double line of tramways (permanent way and track), including road paving, &c., at Linthorpe-road, Linthorpe-avenue, and Linthorpe-crescent. Total length of 815 lineal yards of double line, or 1,630 of single track. Mr. S. E. Burgess, M.Inst.C.E., Borough Engineer and Surveyor, Municipal Buildings, Middlesbrough.

Competitions.

(*See Competition News, page* 862.)

Auction Sales, Tenders, etc.

JUNE 12.—**Eye, Suffolk.**—Messrs. McKelvie, Nops & Co. (Gerald Benjamin, Auctioneer) will sell by auction without reserve timber comprising 352 trees, &c., at the "White Lion" Hotel, at 12.30. Auctioneers, 24, Princes-street, Ipswich.

JUNE 13.—**Ascot.**—Messrs. Joseph Hibbard & Sons will sell without reserve 20,000 ft. cube of 2 to 6 in. oak planking and 700 yards of 3 ft. 24 lb. light rail track, upon the Orchard Lea, Winkfield, and Wood End sites, at 2 o'clock. Auctioneers, 15, Newington Green, N.16.

JUNE 13.—**Mortlake.**—Messrs. Veryard & Yates, F.A.I., will sell, without reserve, by order of the Barnes U.D.C., building plant and materials, at the Council's Depot, High-street, at 1 o'clock. Auctioneers, 365, Norwood-road, S.E.27.

JUNE 13, 14 AND 15.—**Gretna.**—Messrs. W. L. Tiffen & Sons will sell, at H.M. Factory, Gretna, in the Moss Band Area, huts, timber buildings, building material, furniture, furnishings, and equipment, &c., of offices, mess rooms, canteens, &c. Auctioneers, 20, Lowther-street, Carlisle.

JUNE 14.—**Norwood, S.E.**—Messrs. Veryard & Yates will sell at 126, Norwood-road, S.E. (opp. Tulse-hill Station) useful timber, fittings and building materials. Auctioneers, 4, Tokenhouse-buildings, E.C.2, and 365, Norwood-road, S.E.27.

JUNE 14.—**West Croydon.**—Messrs. Douglas Young & Co. will sell at the London Auction Mart, Queen Victoria-street, E.C., to close up estate, at low reserves, West Croydon, 18 freehold cottages, freehold building land, also prominent freehold corner site. Auctioneers, 51, Coleman-street, E.C.

JUNE 15.—**London, E.C.**—Messrs. Daniel Watney & Sons will sell, at Winchester House, Old Broad-street, E.C.2, City of London freehold, 105 and 106, Aldersgate-street, corner building site. Auctioneers, 4A, Frederick's-place, Old Jewry, London, E.C.2.

✱JUNE 17.—**Dorchester.**—Messrs. Henry Duke & Son will sell 64 acres of freehold quarry land, announced for several years, at the Property Sale Room, Dorchester. Auctioneers, Dorchester.

JUNE 20.—**Tulse Hill.**—Messrs. Veryard & Yates will sell at "Dartmouth House," 96, Tulse-hill, S.W., valuable building materials arising from the demolition of the premises. Auctioneers, 4, Tokenhouse-buildings, E.C.2, and 365, Norwood-road, S.E.27.

✱JUNE 22.—**Gloucester.**—Messrs. Bruton, Knowles & Co. will sell garden ornaments, interior fixtures and fittings, oak newel staircase, *parqueterie* ballroom floor, &c., at Fretherne Court, at 1 o'clock. Auctioneers, Albion Chambers, Gloucester.

✱JUNE 22 & 23.—**Sussex.**—Messrs. Harris & Gillow will sell, by direction of the Disposal Board, at Shoreham Camp, Shoreham-by-Sea, Sussex, extensive camp buildings, electric light plants, &c. Auctioneers, 21, North Audley-street, W. 1; and Shoreham-by-Sea.

JUNE 27, 28 AND 29.—**Kidbrook, S.E.**—Messrs. Dennant & Laver will sell by direction of the Disposal Board, at No. 1, Stores Depot, R.A.F., Kidbrook, S.E.3, furniture, hardware, carpets, linoleum and building materials. Auctioneers, Bank Buildings, 239, Lewisham High-road, S.E.4.

JUNE 29 AND 30.—**Cambridge.**—Messrs. Arthur Rutter, Sons & Co. will sell, by direction of the Disposal Board, at Fowlmere Aerodrome, Cambs., four miles from Royston Station, G.N.R., buildings and fitments. Auctioneers, 62, Sidney-street, Cambridge, and 30, Abbeygate, Bury St. Edmunds.

✱VARIOUS DATES.—**London, S.W.**—JUNE 14: Nos. 230, 232, 234, 236, 238, 240 & 242, Brixton-hill, freehold showrooms and factory, with or without goodwill, of the well-known business of Messrs. F. W. Lucas, motor body builders, engineers, &c. JUNE 14: Hamilton-road Garage, Reading, freehold with vacant possession; also a detached double-fronted corner residence. JUNE 21: Nos. 24 & 25, Hythe-road, Willesden, freehold factory, with canal frontage, close to the L.N.W.R. JUNE 28: Southfield factory, Merton-road, Wandsworth, freehold engineering works. JUNE 28: The Waddon Estate, Croydon, freehold factory and building land, situate at the junction of Stafford-road and the new London-Brighton relief road. DATE TO BE ANNOUNCED: London, S.W., six miles from Marble Arch, extensive modern factories, building land, gravel and sand. Auctioneers and agents for the above properties, Messrs. Goddard & Smith, 22, King-street, St. James's, S.W.

Public Appointments.

JUNE 12.—**Leek.**—First Assistant required in the office of the Engineer and Architect, by the U.D.C. Mr. W. E. Beacham, Engineer and Architect, Town Hall, Leek.

✱JUNE 21.—**London, E.**—Sewer Foreman required by the Shoreditch B.C. Wages £3 7s. 4d. per week. Borough Surveyor, Shoreditch Town Hall, Old-street, E.C.2.

Obituary.

The death of Mr. William Longden, managing director of the firm of Messrs. George Longden & Son, Ltd., building contractors, Neepsend, Sheffield, occurred recently at his residence, Wadsley Grove. The late Mr. Longden took an active interest in the work of the Sheffield Master Builders' Association, and held office as President for the years 1910 and 1911. The firm with which Mr. Longden's name is associated has been responsible for the construction, during the last 50 years, of many notable and important public buildings. He became head of the firm in 1907, on the death of his father, the late Mr. James Longden.

A Year-Book for Mechanical Engineers.

The 1922 edition of the *Mechanical World* Year Book (Manchester: Emmott & Co., Ltd., price 2s. 6d. net) has been further enlarged by the addition of twenty pages. The section on Boiler Construction has been largely rewritten and a considerable amount of new matter introduced. A new section on Pipes and Tubes contains a concise collection of data on pipes of cast-iron, wrought-iron, steel and copper, with many tables of dimensions; particulars of flanged bends and tees, expansion bends, &c. The tables on the Thermal Properties of Solids, Liquids and Gases which appeared in a former issue have been restored, as have also the tables of Weights of Hexagonal and Octagonal Bars. A table giving Weights of Fillets is also included. Many other revisions have been effected and a number of new illustrations introduced. Reference is much facilitated by a very complete index.

PROPOSED NEW BUILDINGS & OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERDARE.—It was stated at the Aberdare Council monthly meeting that large plant and building extensions were contemplated in connection with the electricity undertaking. Extensions of tramway routes are also to be considered.

ASHTON.—Plans passed by R.D.C.: Two houses, Downall Green-road, for Mr. A. Derbyshire; recovering of yard, 1 Branch, Stubshaw Cross, for the Bryn Gates Co-operative Society, Ltd.; conversion of house into shop, 84, Wigan-road, for Mrs. Sadler; new house, Liverpool-road, Pewfall, for John and Sarah Halewood.

ASKERN.—A scheme to provide an institute, public hall, swimming and other baths, and a recreation ground under the Miners' Welfare movement, has been approved at Askern. It includes the purchase of the Hydro. The miners have agreed to contribute, if necessary, a sum of not more than 6d. a week for men, and 3d. for boys. At New Edlington, the welfare plans include the provision of a Miners' Hall and Institute, a village hospital and playing fields.

AUDENSHAW.—Plans passed by U.D.C.—Garage, Droylsden-road, Messrs. B. & L. Talbot; new houses, Droylsden-road, Mr. S. Hadfield.

BATH.—Plans approved: Dwelling-house, Henrietta Gardens-road; additions, Combe Cottage, Combe Down; drainage of pigsties, rear of Charlotte-street; bathroom, &c., 14, New King-street; alterations, 11, Old Bond-street; erection of canopy, 1, Trafalgar-place, Holloway.

BELFORD.—Plans passed by R.D.C.: Messrs. Elliott Bros., garage, at Tynely Cottages; by Mr. T. Fender, jnr., extensions to garage at Seahouses; and by Mr. Thompson, on behalf of Mr. Mather, for garage at the Bakery, Bamburgh.

BLACKPOOL.—Plans passed by T.C.: Three houses Reads-road, for R. Morgan; three houses, Reads-road for Wilson & Whiteside; three houses, Brooklyn-avenue, for A. Chadwick; house and shop, Condor-grove and Central-road, for J. E. Dugdale; house, Bispham-road, for G. A. Taylor; two houses, Grange-road, for E. Mason; three houses, Waterloo-road and Pine-street, for J. Harrison; bungalow, Pedder's-lane, for G. G. Gregory; house, Hornby-road and Lincoln-road, for S. Nickson; bungalow, Cavendish-road, for J. Helliwell; bungalow, Anhcorsholme-lane E., for H. Heeler; two houses, Prospect-road, for Bailey & Rawcliffe; semi-bungalow, Gosforth-road, for Misses N. & I. Pollitt; two houses, Bamton-avenue, for J. Midgley; three houses and shop, St. Anne's-road, for T. Hill; bungalow, St. George's-avenue, for G. Hall; three houses, Knowle-avenue, for Mrs. M. Salisbury; house and shop, Borough-road and Central-road, for Mrs. Wright and Miss Bullen; two houses, Cleator-avenue, G. Hodgson; two bungalows, Westmorland-avenue, for J. Astin; bungalow, Alexandra-road, Bispham, for C. E. Boden; house, Whitegate-drive, for W. Parry; house, Longton-road, for Mrs. L. E. Thompson; six houses, Holly-road, for R. Fielding & Son; six houses, Warbreck-hill Estate, for R. Fielding & Son; bungalow, Bournemouth-road, for J. Benson; bungalow, St. George's-avenue, for J. Hayes; bungalow, Cumberland-avenue, for J. W. Wilkinson; house, New-road, for Wray Bros., Ltd.; two houses, Central-drive, for E. Saville; bungalow, Halifax-street, for J. Williamson; bungalow, Watson's-road, for T. Haythornthwaite; new streets, Ashburton-road, for J. Fielding & Son (Blackpool), Ltd.; eight houses, Sherbourne-road, for J. Fielding & Son (Blackpool), Ltd.; eleven houses, Ashburton-road, for J. Fielding & Son (Blackpool), Ltd.; cinema theatre, Lytham-road, for Lytham-road Cinema, Ltd.; two bungalows, Hemingway, for G. Slater; four shops, Red Bank-road, for T. B. Nettleton; bay window, Green-lane, for — Wilkinson; outbuilding, Broadway, for R. Tootill, M.P.; alterations, 46, Sherbourne-road, for Miss J. Ford; additions, Adelaide-street, for E. & A. Whittaker; outhouse, North-avenue, for F. Berry; bay window, Cedar-street, for M. Battersby; addition, 9, Gorton-street, for J. Taylor & Son; alterations, Norbreck Hydro, for Cliffs and Norbreck Hydro, Ltd.; additions, 21, King George-avenue, for F. H. Gorst; wash-house, Breck-road, for F. Ayre; wash-house, 23, Kirkham-avenue, for T. Birtwistle; alterations, 104, Lytham-road, for E. Abbott; alterations, 18, Dale-street, for J. Howarth; additions, Central-drive and Vance-road, for C. Smith; branch bank, Warbreck-road, for Manchester and Liverpool District Banking Co., Ltd.; warehouse, back Carshalton-road, for S. Warburton; alteration, Hotel Metropole, for Spiers & Pond, Ltd.; additions, 126, Hornby-road, for W. Reeder; garage, 78, Reads-road, for Mrs. L. Jones; garage, Horncliffe-road, for E. Ashworth showroom, Waterloo-road, for Skelton & Heathcote; garage, 50, Oxford-avenue, for W. A. Clarke; garage, off Squires Gate-lane, for — Hamer; garage, Chislehurst-avenue, for Mrs. S. J. Rayner; garage, Waterloo-road, for J. E. Wright; garage, Reads-avenue, for H. Pollard; garage, back Lord-street, for J. Jenking;

* See also our List of Contracts, Competitions, etc.

covered yard, back Cross-street, for R. Hull; garage, Mere-road, for T. Ogden; garage, back Highfield-road for F. Noblett; additions, Cookson-street, for J. Uttley & Sons, Ltd.; covered yard, Castle-gate, for G. Morris; greenhouse, 14, Lightwood-avenue, for Mrs. E. Mercer; bungalow, Windsor-avenue, Cleveleys, for Suthers, Wilson & Randall; building line, Layton-lane, for J. Turner; five houses and two shops, Layton-lane, for H. C. Peckett; shop front, 45, Topping-street, for A. Wilson; garage, 124, Hornby-road, for A. Singleton; garage, Yates-street, for Dr. J. Johnson.

BRAMPTON.—Plan passed by R.D.C.:—Bungalow at Gilsland, for Mr. T. H. Armstrong.

CARDIFF.—The Education Committee have decided to set apart sites, each two acres in extent, for the erection of two new secondary schools to serve the Grangetown and Llandaff districts respectively, and two elementary schools for the Gabalfa and Mynachdy and Ely districts respectively. The City Engineer has been instructed to prepare block plans.

CHEPSTOW.—Of several schemes under consideration by the U.D.C., one just decided upon embraces the widening of, and construction of public lavatories in Bank-street, in connection with which a warehouse is to be acquired.

DEWSBURY.—Plans passed by T.C.:—Stoving chamber for Messrs. J. France & Co.; alterations to Trinity Hall, for Messrs. Andrews' Pictures, Ltd.; and office at Bank Top Mill, for Messrs. T. & D. Lee & Sons, Ltd.

EDINBURGH.—The Dean of Guild Court has granted warrants to Miss K. M. Allardyce for the erection of a dwelling-house at Colinton, to E. Graham for a double villa at Grange Loan, to the North British Rubber Co. for the reconstruction of a building at Castle Mills, and to O. Thain for two houses at Hillview-terrace, Edinburgh.——The Streets and Buildings Committee has decided to ask the Corporation for a remit with powers to carry through a widening of the viaduct at Colinton by turning the whole fairway of the bridge into a carriage-way and erecting a footpath on brackets at each side. The probable cost is £8,000.

HOVE.—Plans passed by T.C.:—Mr. C. H. Isaacs, for Mr. A. Cohen, additions 30, New Church-road; Mr. A. W. Leney, for Com. Rawson, R.N., additions, 3, Courtenay-terrace, Kingsway; Mr. G. A. Parker, addition at "Sunnyside," Leicester Villas; Mr. B. James for Mr. P. Baxter, additions, 1, Seaside-villas, Western Esplanade; Mr. C. E. Fry, motor garage, Norman-road (west side); Mr. A. Carden, for Mr. Russell, conservatory, 12, Hallyburton-road (rear of); Messrs. J. Parsons & Sons, for Mrs. V. Smith, room in roof, "St. Paul's Lodge," New Church-road; Messrs. Denman & Son, for Mr. A. A. Jones, six houses and two motor garages, Rochester-gardens; Messrs. C. Crump & Son, for Miss Hitchins, conversion into flats, 1, Belmont; Messrs. Clayton & Black, for Mr. A. W. Crocker, alterations, 9, Victoria-mews; Mr. B. James, for Mr. J. Wilkins, bathroom, 18, Ventnor-villas; Mr. H. Elliott, for Mr. R. Ivens, conversion into flats, 7, Palmeira-square; Mr. J. M. Comber, for Mr. J. Comber, five detached houses, Gladys-road; Mr. J. Norris, bungalow, Langdale-road; Mr. E. R. Mulvey, conversion into flats, 32, Tisbury-road; Mr. G. Wright, for Mr. J. Montgomery, bungalow, New Church-road.

LIVERPOOL.—The Housing Committee has discussed the position in regard to the long-continued stoppage of work on the scheme for 2,000 new houses at Allerton, for which the contract was originally given to the Economic Building Corporation. Of the 2,000 houses, which were to cost about £2,000,000, only 298 have been completed, while 697 are partially constructed, leaving 1,014 upon which no work has been done. The committee decided to recommend the City Council to enter into a contract for the completion of the scheme, at Allerton or some other approved site, with the Unit Construction Co., which is to be guaranteed by Messrs. Alfred Booth & Co., Ltd. The contract price is £678,000, with benefit to the Corporation of the recent and any further fall in wages. The Unit Company undertake to complete 250 houses every three months.

LANCASTER.—Plans passed by T.C.: Additions, Owen-road, for the Wesleyan Chapel Trustees; alterations and additions, in West-road, for Mr. H. Smith; alterations and additions to bakery in Main-street, for the Lancaster and District Co-operative Society, Ltd.

LONDON (LAMBETH).—One-storey building, 110, Wandsworth-road, for Messrs. Edwin Evans & Co.; building, 39 and 40, Cornwall-road, for Messrs. Holland, Hannen & Cubitts, Ltd.; building, 61, Stamford-street, for the L.C.C.

LONDON (SOUTHWARK).—Drainage plans passed by the B.C.: By J. Salmon & Co., Ltd., to 1A, Mina-road; Barclay, Perkins & Co., Ltd., to 14, Westminster Bridge-road; Associated Newspapers, Ltd., to 241, Blackfriars-road; Mr. Sweet to 15, Massinger-street; London, Chatham and Dover Railway Co., to 164A, Southwark Bridge-road.

MOUNTAIN ASH.—The Education Committee has decided to acquire four acres of land at Greenfield for the purpose of erecting a new higher standard school.

NANTYMOEL.—The Surveyor of the Ogmore and Garw Council has been instructed to report on a proposed bridge erection at Nantymoel. The U.D.C. has also decided to apply for sanction for a loan of £34,180 in respect to house erection at Nantymoel and Llangeinor.

OGMORE.—The Glamorgan County Education Committee is, at the instance of the Ogmore and Garw Council, to consider making a roadway and footpath at Caerdu.

PLYMOUTH.—Plans passed by T.C.: Mr. J. L. Cornish, Compton Park-road, extension of garage; Mr. R. Harvey, alteration and additions, 21, Tavistock-road, Stoke; Mr. Oxnam, addition, 4, Mount Pleasant-terrace, Millbay-road; Mr. J. Thomas, 7, De-la-Hay-villas, garage; Mr. C. P. Skinner, alterations and additions, 39, York-street, Plymouth; Mr. Northcott, garage, Regent-street; Mr. S. Cutliffe, alterations and additions, 66, Victory-street, Keyham; Mr. J. Ball, new shop front, 9, Saltash-street; Mr. Pearl, lock-up shop, Sussex-road, Ford: Messrs. Montague Burton, Ltd., alterations, 19, George-street.

PORTISHEAD.—Plans passed by U.D.C.: Bungalow, Nore-road, for Mr. Melhuish; addition, "Mariner's College," Beach-road.

ROCHDALE.—Plans approved by T.C.: R. & T. Howarth, petrol storage tank, Norwich-street; Burney Jordan, lock-up shops, Milkstone-road; H. Clark, garage, Melrose-street; J. A. Mills, alterations and additions to house, Ashfield Cottage; R. Bridge and C. Holt, two garages, 500 and 502, Manchester-road; Ellen Howarth, addition to house, Haslam-street; S. J. Henry, conversion of one house into two houses, 562, Oldham-road; W. A. Ashworth, wash-house, &c., 27, Deeplish-road; Ensor Mill, Ltd., subway between No. 1 and No. 2 Mills, Collinge-street; T. G. Jeffrey, petrol store, Summit, Thornham; T. Robinson & Son, Ltd., petrol store, Railway Works, Fishwick-street; East & Cocker, bungalows, Edenfield-road; Chadwick's Walmsley Brewery, Ltd., "Flying Horse" Hotel, Packer-street and Nelson-street.

ROTHERHAM.—Plans passed by R.D.C.: Brick bungalow, for Mr. A. Hubbard, Goose-lane, Wickersley; five houses, for Mr. J. Hull, Nether Moor-lane, Wickersley; house in Nether Moor-lane, Wickersley, for Mr. J. H. Haywood; house, Nether Moor-lane, Wickersley, for Mr. E. Wall; 100 houses, Grange-lane, Maltby, for the Maltby Colliery Co., Ltd., sent in by the Housing and Town Planning Trust, Ltd.

STRETFORD.—Plans passed by U.D.C.: Glasshouses, &c., 190, Upper Charlton-road, for Mr. Albert Smith; roofing over slipways, Longford Bridge, for Messrs. Rathbone Brothers; division fence, 7, Railway-road, for Mr. Charles Scoble; motor-house, Trafford Bank-road, for Messrs. Stringer & Johnson; motor-house, 31, Kenwood-road, for Mr. J. T. Staples; alterations to works, Lund-street, for Messrs. S. Whittaker, Ltd.; conversion to shop, 55, King-street, for Messrs. Howard & Sons; workshop, Twelfth-street, for Mr. W. Webster Wilson; rebuilding of outhouses, 12, Chatham-road, for Mr. William Swindells; bathroom, &c., 1,143, Chester-road, for Messrs. Hyde's Queens Brewery, Ltd.; offices, stabling, &c., Skerton-road, for Messrs. W. J. Brookes & Sons, Ltd.; 10 houses, King's-road, &c., for the Artistic Housing Co., Ltd.; three houses, Urmston-lane, for Messrs. Longworth & Maunders; six houses, Erlington-avenue, for Mr. William Boswell; restoration of cottage, Wood-road North, for Mr. John Cubbon; house, Ayres-road, for Mr. Richard H. Lord; 12 houses St. John's-road, for Messrs. Winders & Tindale; house, Wellington-crescent, for Mr. Douglas Gosling; re-erection, 2 lodges, Gorse Park, for Stretford Urban District Council; 4 houses, Park-road, for Messrs. Gummer, Leach, Potter & Wathen.

TYNEMOUTH.—Plans passed by T.C.: Dwelling house at corner of Percy Park-road and Syon-street, by Messrs. Cackett & Burns Dick, for Mrs. Connacher; alterations, 18, Howard-street, by Messrs. Harrison, Ash & Blyth, for Messrs. Broughs, Ltd.; additions, Tynemouth School, Huntingdon-place, Tynemouth, by Mr. T. E. Harrison, for Mr. L. G. W. Wilkinson; alterations to premises, 112, Lower Bedford-street, by Mr. W. Stockdale, for Trustees of Evangelistic Mission; shops and flats at corner of Front-street and Chirton-green, also alterations to four cottages, Chirton-green, by Mr. B. R. Irvin, for Mr. G. S. Scorer.

VAYNOR.—The Vaynor Parish Council has decided to carry out road improvements near Vaynor Quarries.

WALLASEY.—Plans passed by the T.C: Pavilion on land off Molyneux-drive, for the Beverley Tennis Club; conversion into three flats of Elmwood, Atherton-street, for Miss Storey; extension to "The Bungalow," School-lane, for Mr. G. Barnett: five dwelling-houses, Grove-road, for Mr. G. A. Lindley; conveniences, Breck-road, for the Premier Building Co., Ltd.; additions at "Langroyd," Lansdowne-road, for Mr. C. E. Hancox; conversion of lock-up shop into combined dwelling-house and shop and lock-up shop at 126 and 126A, King-street, for Mr. W. H. Haworth; conversion of house and shop into dwelling-house and one lock-up shop, 69, Wallasey-road, for Mr. W. J. Monteith.

WALTHAMSTOW.—Plans passed by U.D.C.: Additions to garage, Beverley-road, for W. A. Lewis; house and garage, Castleton-road, for R. J. Paul; two lock-up shops, Hale End-road, for A. G. Barton; alterations, 151 and 153, Hoe-street, for T. B. Whinney; cart shed, Fulbourne-road, for J. and J. Dean; store, 406, Forest-road, for R. J. Paul; addition to stable, Union-road, for R. J. Paul; alterations to garage, "Castle" Yard, Grosvenor Rise East, for C. Hodgson; conversion of houses into club, Hoe-street, for Shurmur & Sons; garage, Montalt-road, for H. H. Starke; club house, Billet-lane, for H. J. Heyden.

WELLINGBOROUGH.—The Ministry of Health have sanctioned the erection of twelve more houses on the housing site, and the Urban Council have decided to erect four houses of type "A" and eight of type "B."

WETHERBY.—The R.D.C. has passed plans for the lay-out of a portion of the Rigton Hill estate, showing 89 houses; for two semi-detached houses and a bungalow on the same estate; for a house and garage at Wetherby; and for house and a motor garage at Bardsey.

WITHERNSEA.—Plans passed by U.D.C.:—Four houses for Mr. Greensides in Prince's-avenue, and a lock-up shop for Mr. F. Needler in Queen-street.

WORPLESDON.—Plans have been drawn up for the erection of a lych gate at the entrance to the churchyard.

YORKSHIRE.—The formation of a £1,000,000 company for the erection of houses on a non-profit basis is reported by the *Industrial Daily News*. The Industrial Housing Association, Ltd., is an amalgamation of interests of a number of big coal and iron companies, together with a well-known firm of housing experts, for the purpose of building houses for their employés. Among the firms interested are the Sheepbridge Coal & Iron Co., Ltd., the Hickleton Main Colliery Co., Ltd., the Bullcroft Main Collieries, Ltd., John Brown & Co., Ltd., the Rossington Main Colliery Co., and the Housing and Town Planning Trust, Ltd. One of the first schemes to be undertaken is the erection of 500 houses at Rossington, for the Rossington Main Colliery Co. Plans have been prepared by Sir Tudor Walters, M.P., chairman of the Housing and Town-Planning Trust, Ltd., and are now under consideration by the Doncaster R.D.C. The lay-out will be on the latest "Garden City" lines, and a feature will be the provision of adequate recreative facilities, including sports grounds, institutes, &c.

FIRES.

AYR.—A destructive fire has occurred at the bakery at 80, High-street, Ayr, occupied by Messrs. Galbraith.

BALLINDALLOCH.—The station belonging to the Great North of Scotland Railway Co. has been destroyed by fire.

BRADFORD.—The older portion of the premises of Mr. W. M. Berry, printer and lithographer, of Nesfield-street, Manningham-lane, Bradford, has been destroyed by fire.

GLASGOW.—Damage estimated at £8,000 has been caused by an outbreak of fire in premises at 112, Stockwell-street. The upper stories of the building were occupied by Messrs. Miller, Miller, Ltd., furniture manufacturers.——Damage estimated at £15,000 has been done by fire to a block of buildings at 100, John-street, belonging to Messrs. Wm. Clark & Son, manufacturers of metal casks and drums.——Another fire, involving damage to the estimated amount of £1,500, is reported as occurring in the motor-garage at 6, Ingram-street, Govan, belonging to Messrs. W. Jenkins, Ltd.——A fire which occurred in the Tron Cinema House, 115, Trongate, occupied by the Britannia Picture Co., Ltd., caused about £1,000 damage.

HIRWAIN.—A fire at the Wagon Repair Works, Hirwain, on Friday, caused much damage to the premises.

HOLYWELL.—Downing Hall, near Holywell, Flintshire, has been burned to the ground, only the front wall remaining standing. Downing Hall was originally the home of Thomas Pennant, the historian and antiquary, and passed later to the Earl of Denbigh by marriage. The house was built in 1627, and bore on the front an inscription in Welsh meaning, "Without God there is nothing, with God enough."

LONDON.—The premises of Mr. Philip Colberg, a manufacturer of three-ply wood, at Lawrence-road, South Tottenham, were completely destroyed by a fire on Thursday last week. The damage was estimated at £50,000.

NORTHWICH.—Considerable damage has been done by an outbreak of fire at the farm of Mr. Arthur Frith, Sevenoaks, Northwich.

SEEND.—The ironworks at Seend, Wiltshire, which, after taking three years to build, were only opened a month ago, have been destroyed by fire. The works belong to Messrs. Merry & Cunninghame.

STROUD.—A serious fire has occurred at the engineering and boatbuilding works of Messrs. Isaac Abdella & Mitchell, Ltd., at Brimscombe, near Stroud.

Plumbers' Wages.

It is reported that a dispute has arisen between the Federation of Master Plumbers' Associations and the working plumbers in the Manchester area. The Federation has announced that the National Wages and Conditions Council has awarded a reduction of wages of 2d. an hour, which was to come into operation on June 1. The Manchester and District Committee of the Operative Plumbers' Association replies that by their action the employers have broken an agreement. Mr. G. Harris, Secretary of the Manchester lodges of the Operative Plumbers' Association, states that the Manchester plumbers are not under the jurisdiction of the National Wages and Conditions Council.

Brass Casting Research.

The British Non-Ferrous Metals Research Association (71, Temple-row, Birmingham) has carried out an extensive research on the influence of gases on high-grade brass. A further investigation is now being started by the Association at the Research Department, Woolwich, in which the support of the Engineering Co-ordinating Board of the Department of Scientific and Industrial Research has been secured. The prime object of the present work is to study the conditions necessary for securing both surface and internal soundness of strip brass ingots such as are required for cold-rolled sheet metal. The investigation should throw light on other types of casting in non-ferrous alloys and should interest a wide circle of manufacturers in the metal and engineering trades. Dr. Harold Moore, and Mr. B. Genders, who have already been engaged on similar work, will have charge of the research, which will be conducted partly in the works of members of the Association and partly in the Woolwich laboratories.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue several prices have been revised.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 2 0

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	3 1 0	Best Blue Pressed Staffs.	10 1 6
Do. grooved for plaster	3 3 0	Do. Bullnose	10 11 6
Do. Bullnose	4 0 0	Blue Wire Cuts	8 1 6
Best Stourbridge Fire bricks:— 2½ in.	11 3 0	3 in.	13 2 0
GLAZED BRICKS— Best White, Ivory, and Salt Glazed Stretchers	24 0 0	D'ble Str'tch'rs	32 10 0
		D'ble Headers	29 10 0
		One Side and two Ends	33 10 0
Headers	23 10 0	Two Sides and one End	34 10 0
Quoins, Bullnose and 4½in. Flats	30 10 0	Splays and Squints	32 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.		
Thames Ballast	14 0	per yard,	delivered 2 miles radius Paddington.
Pit Sand	17 0	" "	
Thames Sand	19 0	" "	
Best Washed Sand	19 0	" "	
½ in. Shingle for Ferro-Concrete	19 0	" "	
¼ in. " "	20 0	" "	

Per ton delivered in London area in full van loads.

	£ s. d.		£ s. d.
Best Portland Cement. British Standard Specification Test	3 10 6		3 16 0
63/6 alongside at Vauxhall in 80-ton lots.			
Ferrocrete per ton extra on above			10 0

NOTE.—The sacks are charged at 1s. 9d. each and credited at 1s. 6d. each if returned in good condition within three months, carriage paid.

Best Ground Blue Lias Lime 2 8 0 at rly. depot.
Grey Stone Lime 61s. 0d. per ton delivered in City and Central districts.
Stourbridge Fireclay in s'cks 37s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	3 5½
Do. do. delivered on road wagons at Nine Elms Depot	3 6½
PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 9½
Do. do. delivered on road wagons at above stations, per ft. cube	4 10½

White basebed, 3d. per ft. cube extra.
NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.

YORK STONE, BLUE—*Robin Hood Quality.*

Delivered at any Goods Station London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per Ft. Super	6 1½
6 in. rubbed two sides, ditto "	6 7½
3 in. sawn two sides slabs (random sizes) "	2 7
2 in. to 2½ in. sawn one side slabs (random sizes) "	1 8
1½ in. to 2 in. ditto, ditto "	1 5

HARD YORK—

Delivered at any Goods Station London.	
Scappled random blocks Per Ft. Cube	7 6
6 in. sawn two sides landing to sizes (under 40ft. super.) Per Ft. Super	6 6
6 in. rubbed two sides ditto "	7 2
4 in. sawn two sides slabs (random sizes) "	3 4
3 in. ditto, ditto "	2 10
2 in. self-faced random flags Per Yard Super	9 9

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	36 0	per standard
4 × 9	35 0	"
4 × 8	30 0	"
4 × 7	30 0	"
3 × 8	30 0	"
3 × 7	25 0	"
2½ × 7	25 0	"
3 × 6	25 0	"
3 × 11	34 0	"
2 × 11	32 0	"
3 × 9	30 0	"
2½ × 9	30 0	"
3 × 4½	20 10	"
3 × 4	20 10	"

PLANED BOARDS.

1 × 11	42 10	"
1 × 9	37 10	"

PLAIN EDGE FLOORING.

Inches		
¾	20/-	per square
¾	22/6	"
1	25/-	"
1¼	32/6	"
1½	44/-	"

TONGUED AND GROOVED FLOORING.

Inches		
1	25/-	per square
1¼	32/6	"
1½	44/-	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	17/6	per square
¾	22/6	"
1	25/-	"

BATTENS.

Inches	s. d.	
¾ × 2	3 0	per 100 ft.

SAWN LATHS.

Per bundle	0 4 0

Dry Wainscot Oak, per ft. super, as inch	0 2 6	to	0 3 0	
¼ in. do. do.	0 1 10½	to	0 2 6	
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 2 3	to	0 3 0	
Cuba Mahogany	0 3 6	to	0 4 0	
Teak (Rangoon, Moulmein or Java), per load	52 10 0	to	55 0 0	
American Whitewood planks, per ft. cube	0 16 0	to	0 18 0	
Best Scotch Glue, per cwt.	7 2 0	to	—	
Liquid Glue, per cwt.	4 18 0	to	6 0 0	

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	46 10 0
" "	22 by 12	42 5 0
First quality "	22 by 11	39 0 0
" "	20 by 12	37 2 6
Best Blue Portmadoc	20 by 10	31 15 0
" "	18 by 10	26 5 0
First quality "	18 by 9	23 2 6
" "	16 by 10	22 0 0
" "	16 by 8	17 2 6

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	6 1 4
Ditto hand-made ditto	6 12 6
Ornamental ditto	6 17 6
Hip and valley tiles (per dozen) { Hand made	0 8 6
Hip and valley tiles (per dozen) { Machine made	0 8 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	14 10 0
Plain Compound Girders	16 10 0
Stanchions	18 0 0
In Roof Work "	22 0 0

WROUGHT IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £15 net value delivered direct from Works, 5 per cent. less above gross discounts, carriage forward if sent from London Stocks.)

Tubes. (all sizes).	Fittings. Up to 2".	Fittings. Over 2".	Flanges. Up to 2".	Flanges. Over 2"
Gas	55 %	50 %	60 %	65 %
Water	50 %	45 %	55 %	60 %
Steam	45 %	40 %	50 %	55 %
Galv'd—				
Gas	45 %	42½ %	52½ %	57½ %
Water	37½ %	32½ %	47½ %	52½ %
Steam	27½ %	32½ %	42½ %	47½ %

L.C.C. COATED SOIL PIPES—London Prices ex works.

Pipe.	s. d.	Bends, stock angles.	s. d.	Branches, stock angles.	s. d.
2 in. per yd. in 6fts plain	3 10½		3 4		4 0
2½ in. "	4 8		3 8		5 0
3 in. "	5 5½		4 0		6 0
3½ in. "	6 1		5 0		7 0
4 in. "	6 10½		5 8		8 0

RAIN-WATER PIPES, &c.

Pipe.	s. d.	Bends, stock angles.	s. d.	Branches, stock angles.	s. d.
2 in. per yd. in 6fts. plain	2 6½		2 0		2 8
2½ in. " "	2 9½		2 4		3 2½
3 in. " "	3 4½		2 10		4 3
3½ in. " "	4 0		3 4		5 0
4 in. " "	4 6		4 1½		6 1

L.C.C. DRAIN PIPES.—9 ft. lengths. London Prices per yd.: 4 in., 5/9. .. 5 in., 7/2. .. 6 in., 8/9.

Per ton in London.

	£ s. d.		£ s. d.
IRON— Common Bars	13 10 0	to	14 10 0
Staffordshire Crown Bars — good merchant quality	14 10 0	..	15 10 0
Staffordshire "Marked Bars"	17 10 0	..	18 10 0
Mild Steel Bars	12 10 0	..	13 10 0
Steel Bars, Ferro-Concrete quality, basis price	12 10 0	..	13 10 0
Hoop Iron, basis price	17 0 0	..	18 0 0
" " Galvanised	31 0 0	..	33 0 0
Soft Steel Sheets, Black— Ordinary sizes to 20 g.	15 0 0	..	16 0 0
" " " 24 g.	16 0 0	..	17 0 0
" " " 26 g.	17 10 0	..	19 10 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality— Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g.	21 0 0	..	22 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	22 0 0	..	23 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	24 0 0	..	26 0 0
Flat and Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 9ft. 20 g.	21 10 0	..	22 10 0
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	22 0 0	..	23 0 0
Ordinary sizes, 6ft. to 9ft. 26 g.	24 0 0	..	25 0 0

METALS (*Continued*).

Per ton in London.

	£ s. d.		£ s. d.
Sheets Galvanised Flat, Best quality— Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	27 0 0	..	28 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	28 0 0	..	29 0 0
Best Soft Steel Sheets, 26 g.	30 0 0	..	31 0 0
Cut Nails, 3in. to 6in. (under 3in. usual trade extras.)	24 10 0	..	25 10 0

METAL WINDOWS—Standard sizes suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1/7 to 1/10 per foot super.

LEAD, &c.

Delivered in London.

	£ s. d.		£ s. d.
LEAD—Sheet, English, 4 lb. and up	36 0 0	..	—
Pipe in coils	36 10 0	..	—
Soil Pipe	39 0 0	..	—
Compo pipe	40 0 0	..	—
Old lead, ex London area, at Mills per ton	22 0 0	..	—
Do., ex country, carriage forward per ton	23 0 0	..	—
COPPER— Strong Sheet per lb.	0 2 8	..	—
Thin "	0 2 4	..	—
Copper nails "	0 2 8	..	—
Copper wire "	0 2 4	..	—
TIN—English Ingots "	0 1 9	..	—
SOLDER—Plumbers' "	0 0 10	..	—
Tinmen's "	0 1 0	..	—
Blowpipe "	0 1 3	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft.		Per Ft.
15 oz. fourths	5½d.	32 oz. fourths	8½d.
" thirds	4½d.	" thirds	10½d.
21 " fourths	5½d.	Obscured Sheet, 15 oz.	4½d.
" thirds	6d.	21 "	7d.
26 " fourths	6½d.	Fluted and Enamelled 15 "	7½d.
" thirds	7½d.	Fluted and Enamelled 21 "	9d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate	4½d.
⅛ Rough rolled	6d.
¼ Rough rolled	6½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7d.
Ditto, tinted	9½d.
Rolled Sheet	6d.
White Rolled Cathedral	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil	in pipes per gallon	0 4 6
" " "	in barrels "	0 4 7
" " "	in drums "	0 4 9
Boiled " "	in barrels "	0 4 11
" "	in drums "	0 5 1
Turpentine	in barrels "	0 6 3
"	in drums (10 gall.) "	0 6 6
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		54 15 0
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered		76 5 0
Red Lead, Dry (packages extra)	per ton	38 0 0
Best Linseed Oil Putty	per cwt.	0 17 0
Filocol	per cwt.	0 15 6
Size. X D Quality	fkn.	0 4 6

VARNISHES, &c.

		Per gallon. £ s. d.
Oak Varnish	Outside	0 14 0
Fine ditto	ditto	0 16 0
Fine Copal	ditto	0 18 0
Pale Copal	ditto	1 0 0
Pale Copal Carriage	ditto	1 4 0
Best ditto	ditto	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	ditto	0 18 0
Fine Copal Cabinet	ditto	1 2 6
Fine Copal flatting	ditto	1 0 6
Hard drying Oak	ditto	0 18 0
Fine Hard drying Oak	ditto	0 19 0
Fine Copal Varnish	ditto	1 0 0
Pale ditto	ditto	1 2 0
Best ditto	ditto	1 12 0
Best Japan Gold Size		0 12 0
Best Black Japan		0 14
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 9 0
Berlin Black		0 14 0
Knotting (patent)		1 5 0
French and Brush Polish		1 2 6
Liquid Dryers in Terebine		0 12 6
Cuirass Black Enamel		0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	15	0
Add if in clay	" "	1	6
Add for every additional depth of 6 ft.	" "	0	9
Planking and strutting to trenches	per foot super	0	7
Do. to sides of excavation, including shoring	"	1	2

CONCRETOR.

Portland cement concrete in foundation 1 to 6 ..	per yard cube	40	0
Add if in underpinning in short lengths	" "	9	0
Add if in floors 6 in. thick	" "	3	9
Add if in beams	" "	4	6
Add if aggregate 1 : 2: 4	" "	11	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	3	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	36	0	0
Add if in stocks	"	8	10	0
Add if in Staffordshire blues	"	25	10	0
Add if in Portland cement and sand	"	3	10	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat strucks or weathered joint.....	" "	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	3
Setting ordinary register grates and stoves	each	1	1	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	5	5	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	7	6
Three-quarter-inch vertical damp course	" "	11	0
¾ inch on flats in two thicknesses.....	" "	8	6
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	4

MASON.

York stone templates fixed	per foot cube	16	3
York stone sills fixed	" "	28	6
Bath stone and all labour fixed	" "	15	0
Portland stone fixed	" "	22	0

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails....	per square	79	9
Do. 20 in. × 10 in. Do. Do.	"	90	9
Do. 24 in. × 12 in. Do. Do.	"	99	0

CARPENTER AND JOINER.

Fir framed in plates .....per foot cube		5	9
Do. joists	" "	6	9
Do. roofs, floors and partitions	" "	6	9
Do. trusses	" "	8	6

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	42/-	48/-	56/-	85/-

Flat centering for concrete floor, including struts or hangers .. "		60	0
Do. to beams .....per ft. sup.....		1	6
Centres for arches ..... "		2	0
Gutter boards and bearers ..... "		1	3

FLOORING.		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		49/-	58/-	67/-
Do. tongued and grooved	"		54/-	65/-	72/-
Do. matchings	"	45/-	55/-		
Moulded skirting, including backings and grounds .....per ft. sup.		1/8	2/1	2/3	2/9

SASHES AND FRAMES.		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	" "	2	3
Add for fitting and fixing	" "	0	6

Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size..... " " 4 1

DOORS.		1½"	1¾"	2"
Two-panel square framed .....per ft. sup.		2/4	2/7	2/9
Four-panel Do.	"	2/8	3/0	3/3
Two-panel moulded both sides	"	3/0	3/3	3/6
Four-panel Do. Do.	"	3/3	3/7	3/10

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated ..... per foot cube		14	6

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/9	1/10	2/1
Deal shelves and bearers	"	1/6	1/8	1/11
Add if cross tongued	"	2d.	2d	2d.

STAIRCASES.

		1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets		2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed		1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4
Sash fasteners .....11½d.		Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and making good	19/-
Casement stays.....	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	19	0
Plain compound girders	"	22	0
Do. stanchions	"	25	0
In roof work	"	30	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints ..	ft. run	1/11	2/4½	3/7	4/-
Ogee Do. Do. ..	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	56	0
Do. Do. in flats	"	52	0
Extra labour and solder in coated cesspools	each	7	4
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	10
Copper nailing	" "	0	7

	½"	¾"	1"	1½"	2"	4"
Drawn lead waste per ft. run	10d.	1/6	1/9	3/1	3/10	
Do. service "	1/5	1/11	2/3	3/6		
Do. soil "						6/2
Bends in lead pipe each					3/3	8/2
Soldered stop ends "	1/2	1/8	2/1	2/0	3/6	
Red lead joints .... "	11d.	1/-	1/3	1/11	2/4	4/0
Wiped soldered joints "	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws .....„				14/7	19/6	
Bib cocks and joints ..„	6/4	9/7	15/4	41/-		
Stop cocks and joints „	15/4	17/2	25/8	64/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	0
Do. Do. Sirapite	" "	3	2
Do. Do. Keen's	" "	4	4
Add sawn lathing	" "	1	7
Add metal lathing	" "	2	10
Portland cement screed	" "	2	9
Do. plain face	" "	4	4
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	4

GLAZIER.

21 oz. sheet plain	per foot sup.	1	1
26 oz. Do.	" "	1	4
Obscured sheet	" "	1	8
⅛ in. rolled plate	" "	1	0
¼ in. rough rolled or cast plate	" "	1	1
¼ in. wired cast plate	" "	1	7

PAINTER.

		s	d.
Preparing and distempering, 2 coats	per yard sup.	1	0
Knotting and priming	" "	0	8
Plain painting 1 coat	" "	0	11
Do. 2 coats	" "	1	7
Do. 3 coats	" "	2	4
Do. 4 coats	" "	3	0
Graining	" "	2	5
Varnishing twice	" "	1	11
Sizing	" "	0	4
Flatting	" "	0	8
Enamel	" "	1	3
Wax polishing	per foot sup.	0	9
French polishing	"	1	3
Preparing for and hanging paper	per piece	2/- to 4/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TRADE NEWS.

Messrs. Karrier Motors, Ltd. (Huddersfield), have just added a 30–40 cwt. lorry to their range. The new model is the result of long and careful consideration of the requirements of this particular class of motor, and it is only after a long series of tests that it is being placed on the market. While its general design differs considerably from the larger Karrier models it is characterised by the same simplicity of layout and sturdy construction. The main object of the makers has been to produce in the new type a vehicle that would combine reliability with low maintenance costs, and, at the same time, enable it to be sold at a specially low figure. It is standardised in two types, one for net loads of 30 cwt. and the other for loads of two tons. The latter is produced also as a 14-seater charabanc, a size of vehicle that promises to have an increasing vogue in the future

The new "Hataglance" Decimal Timber Reckoner compiled by Mr. M. Codling, managing director of the Midland Joinery Works, Ltd., Burton-on-Trent, is to be recommended to estimators, cost clerks, &c. The sheet, which is published at 1s., gives at a glance the price per foot run for timber of any size from 1 in. to 48 in. sectional area at from £10 to £60 per Petrograd standard; also price per foot super and cube, together with other useful information.

The first annual edition of the *Marconi International Directory, Buyers' and Exporters' Guide*, just published, will be welcomed by business men. It embodies many new features and is arranged throughout for quick reference to any item. The alphabetical section, which gives the full titles, description of business, full postal and cable addresses of the leading business houses of the world, is arranged in one complete series instead of providing separate lists for each country or state. Similarly, the *Buyers' and Exporters' Guide* shows under each trade heading the principal firms in each country engaged in that particular trade. Another unique feature is provided by the indexes to the *Buyers' and Exp rters' Guide*, which have been translated into five different languages. Not the least important section, however, is the cable address register, which enables one to identify the sender of a cablegram when an unfamiliar signature has been used. The volume is certainly well worth the price charged, viz., 25s.

The General Electric Co., Ltd. (Magnet House, Kingsway, W.C.2), has issued a new edition of their complete catalogue of electric light fixtures, in which all prices have been revised to present-day level. The catalogue contains some 160 pages and over 600 illustrations of pendants, brackets, ceiling fixtures, electroliers, standards and bronzes in designs suitable for every domestic and public lighting requirement.

The condition of a floor undoubtedly makes or mars the appearance of a house. A well-groomed appearance of linoleum and wood floors adds immensely to the charm of the home, but in these days of servantless houses many housewives have learned to dread the back-breaking labour necessary to maintain a reasonable degree of cleanliness and comfort by the old method of wax-polishing, in which every square inch of the floor has to be rubbed and polished. "Tessaline," the "once-a-year" floor varnish, manufactured by Messrs. Robt. Ingham Clark & Co., Ltd., West Ham Abbey, London, E. 15, removes all need of excessive physical effort. It is applied to the linoleum or wood floor with a brush as easily as an ordinary varnish and imparts a rich, non-slippery gloss which will last a whole year. Dust can be removed with a broom, while once in three or four weeks the surface may need to be lightly washed over with a flannel and clean tepid water. In addition to the rich durable gloss, "Tessaline" imparts a bright, clean appearance to linoleum, floor-cloth and wood floors, while at the same time the original colours are enriched and revived and the surface fully protected against wear.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

*Denotes *accepted*. † Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.

BANGOR.—Repair of the pier, for the T.C. :—
*S. Fletcher, Halifax £3,684

BARNSLEY.—For alterations and additions to the "Manor Castle" Inn, Pontefract road. Messrs. R. & W. Dixon, architects, 5, Eastgate, Barnsley. Quantities by architects :—

P. & W. Anderson, Ltd., London ..	£2,993 0
W. G. & L. England, Barnsley	2,200 0
A. Taylor & Son, Barnsley	2,185 0
G. Haigh & Sons, Barnsley	2,057 10
E. Broley, Barnsley	1,976 0
A. E. Gelder, Barnsley	1,965 0
H. Field, Barnsley	1,955 0
G. Mellor, Barnsley	1,950 0
F. Taylor, Barnsley	1,932 12
C. D. Potter & Sons, Barnsley	1,900 0
*W. Dunk & Sons, Barnsley	1,897 15

BATH.—Construction of convenience at Orange-grove, for the T.C. :—
*F. J. Amery & Son £329

BECKENHAM.—For erection of nine parlour houses, with office and workshop, at Elmers End, for the U.D.C. Messrs. H. Tanner, 12, Regent street, S.W.1., and Mr. Gordon Allen, F.R.I.B.A., 435, Strand, W.C.2., Joint Architects :—
†J. R. Woodham & Sons, Bromley .. £5,368

BIRMINGHAM.—Strengthening work on the Hopton Brook siphon, for the T.C. :—
*William Muirhead, Macdonald, Wilson & Co. £13,191 16 10

BIRMINGHAM.—Supply of steel pipes to water dept. :—
*Clayton, Sons & Co. £6,722

CALLINGTON.—For erection of house (excluding plumbing and grates), for Mr. J. Biscombe. Mr. C. Truscott, architect, Downgate, Pensilva, Liskeard :—

G. A. Dingle, Kelly Bray	£1,445
J. Davy & Sons, Pensilva	1,295
Runnalls & Sons, Liskeard	1,288
C. Symons, Liskeard	1,277
†C. James, Callington	1,249

ELGIN.—For laying concrete pavements in various streets, for the T.C. Mr. A. A. Turiff, Burgh Surveyor, Elgin :—

C. Macdonald & Sons, Aberdeen	£189 0 0
G. Garrow, Elgin	153 11 9
P. & W. Vass, Elgin	153 11 9
J. Brodie & Son, Elgin	149 13 6
*A. Falconer, Elgin	145 13 0

GUILDFORD.—For alterations to and the adaptation of an old building at the Allen House Grounds, for use as a sports pavilion and convenience. The Borough Surveyor, Council Offices, Tunsgate, Guildford :—
§Grove & Holt, Guildford £349

HERTFORD.—For erection of public lavatories in the Wash, for the T.C. The Borough Engineer, The Castle, Hertford. Quantities by Mr. S. M. Senior, Borough Surveyor and Engineer, Hertford :—

Ekins & Co., Ltd., Hertford	£815 0 0
Botsford, Vale & Wightman, Hertford	725 0 0
Alfred Scales, Hertford	769 18 10
Hy. Norris & Son, Hertford	707 0 0
*Arthur Cole, Ltd., Luton	656 0 0

LEEDS.—Painting at Canal-gardens, Roundhay Park, for the T.C. :—
*Wadsworth & Robinson £205 7 0

LEEDS.—Construction of boundary wall at Mill Green, for the T.C. :—
*F. Reddyhoff & Son £374

LEEDS.—For alterations to 27, George-street, for the T.C. :—
*Geo. Monkman £540

LEEDS.—Supply of electric lift at offices of manager of Market Hall, for the T.C. :—
*Rawlinsons, Ltd. £820

LEEDS.—Supply of cast-iron pipes, for Sewerage Committee of the T.C. :—
*Staveley Coal & Iron Co. £330 5 5

LEICESTER.—For erection of house and garage in Uppingham-road, for Mr. Frank B. Allen. Mr. T. Dale, architect, Leicester. Quantities by Robey E. Carpenter & Son, Palace Chambers, Leicester :—

Bowles & Son, Leicester	£1,796 0 0
W. Riddle & Sons, Kettering ..	1,780 0 0
Thos. Barker & Sons, Loughborough	1,639 0 0
W. M. Sharp & Son, Ltd., Leicester	1,550 0 0
Bert W. Cole, Leicester	1,533 11 8
Frank Garner & Son, Leicester ..	1,530 0 0
Burrows, Kirkland & Burrows, Leicester	1,447 4 2
*Coltman Bros., Leicester	1,445 7 0

LONDON.—Supply of Harrison patent rotary screen to the St. Marylebone B.C. :—
*Liner Concrete Machinery Co., Newcastle-on-Tyne £745

LONDON.—Supply of deal blocks and reinforcinr fabric for reconstruction of part of St. Paul's-road, fog the Islington B.C. :—

Creosoted yellow deal blocks and laths :—

The Improved Wood Pavement Co., Ltd., 46, Queen Victoria-street, E.C.4	£3,348 0 0
A. S. L. Mackintosh & Partners, 80, Fenchurch-street, E.C.3	3,245 11 10
Burt, Boulton & Haywood, Ltd., Salisbury House, London Wall, E.C.2	3,220 10 0
The Acme Flooring & Paving Co. (1904), Ltd., Gainsborough-road, Victoria Park, E.9	3,174 18 6
John B. Lee & Sons, Ltd., Woolpack Buildings, 3, 4, and 5, Gracechurch-street, E.C.3	3,159 9 6
*Gabriel, Wade & English, Ltd., Commercial-road, Lambeth, S.E.1	3,138 12 6
Sir W. Burnett & Co., Ltd., Nelson Wharf, West Ferry-road, Millwall, E.14 (for blocks of a lower quality than is required	3,009 11 6

Reinforcing fabric :—	Price per sup. yd. s. d.
Walker-Weston Co., Ltd., Empire House, 7, Wormwood-street, E.C.2	3 6
Barb Engineering Co., 5, Victoria-street, S.W.1	2 11
*British Reinforced Concrete Engineering Co., Ltd., 4, Iddesleigh House, Caxton-street, S.W.1	2 4
Johnson's Reinforced Concrete Engineering Co., Ltd., 1, Basinghall-street, E.C.2	2 4

LONDON.—For resurfacing of parts of carriageways of Kensington Park-road, Holland-street, Hornton-street, and Warwick-road, for the Kensington B.C. :—
*Whitehall Asphalt & Engineering Co.—11s. per square yard, with free maintenance for six years and 4d. per yard super for a further two years.

LONDON.—Resurfacing of carriageway of Hewer-street, for the Kensington B.C. :—
*Highways Construction, Ltd. .....6s. 6d. per yard super.

LONDON.—For repairs, &c., at 31, Highbury-grove, for the Islington B.C. :—

Thomas Shillitoe, 3, Electric-parade, Seven Sisters-road, N.7	£479 0 0
J. C. Mather, 38, Northampton-street, N.1	478 0 0
Building & Maintenance Dept...	460 0 0
A. E. Beer & Co., 303, Hornsey-road, N.19	395 17 6
Joseph Johnson, 49, Halton-road, N.1.	383 0 0
†George Bennett, 14, Thorpedale-road, N.4	359 0 0
Randall, F., & Sons, 467, Holloway-road, N.7	354 15 0

LONDON.—For heating boiler at greenhouse at cemetery, for the Islington B.C. :—
*Thames Bank (Blackfriars) Iron Co. £111

LONDON.—Supply of heating apparatus at garage in Lofting-road, for the Islington B.C. :—
*Wembley Heating Co. £166

LONDON.—Messrs. Barrett & Wright, Ltd., 19, Bartholomew-close, London, E.C.1, write to say that they have been advised that their tender of £631 for the supply of calorifier to the Whitfield-street baths, for St. Pancras B.C., has been accepted.

LONDON.—Laying of 4¼ miles of main at Streatham, for the Metropolitan Water Board :—

Baldry, Yerburgh & Hutchinson, Ltd.	£65,399 3 9
Sir William Arrol & Co., Ltd...	60,080 11 0
Wilson Lovatt & Sons, Ltd...	55,000 0 0
Whittaker Ellis, Ltd.	53,260 15 3
Crawford Bros.	50,667 11 8
Wm. Muirhead, Macdonald, Wilson & Co., Ltd.	50,422 7 9
Walter Jones & Sons	47,793 14 8
Engineer's estimate	47,500 0 0
Trollope & Colls, Ltd.	46,600 0 0
The Foundation Co., Ltd.	45,642 7 11
Kirk & Randall, Ltd.	45,514 4 4
James Byrom, Ltd.	44,717 11 6
Wm. Press & Son	43,843 10 0
Unit Construction Co., Ltd...	43,061 8 2
John Mowlem & Co., Ltd.	42,564 7 6
*Consolidated Construction Co., Ltd.	39,677 13 6
G. B. Hughes & Co., Ltd.	38,424 3 6

LONDON.—Supply of pipes and castings, to the Metropolitan Water Board :—

Macfarlane Strang & Co., Ltd.	£36,625 12 6
Cochrane & Co. (Woodside) Ltd.	35,670 6 3
Cochrane & Co., Ltd. (Middlesbrough)	35,642 15 0
Staveley Coal & Iron Co., Ltd.	35,364 16 3
*Stanton Ironworks Co., Ltd...	34,731 17 6
Buderus Trading Co., Ltd., acting on behalf of Buderus'sche Eisenwerhe, Wetzlar	32,332 0 0

LONDON.—Supply of steel tubes, to the Metropolitan Water Board :—

The Scottish Tube Co., Ltd.	£397 10
John Spencer, Ltd.	375 0
Thos. Piggott & Co., Ltd.	374 0
*Stewarts & Lloyds, Ltd.	355 0

LONDON.—Repairs to "Riversdale," Green-lanes, Stoke Newington, for the Metropolitan Water Board :—

J. Webb & Son	£210 0
Chessum & Young	206 16
W. H. Kelland & Sons	197 0
R. Lidstone & Sons	188 0
*J. Collins & Co.	184 5

LONDON.—Repairs to 40, Kew Bridge-road, Brentford, for the Metropolitan Water Board :—

Chapman & Sons	£163 0 0
Troy & Co.	144 0 0
Berdoe & Son	118 17 8
*T. Johnson	113 0 0

LONDON.—For repairs at various libraries, for the Lambeth B.C. :—

*Messrs. Fields—	
Carnegie Library (internal and external)	£500 0
Durning Library (internal)	260 0
*Cooper, Upton, Ltd.—	
West Norwood Library (internal)	149 18
Tate (South Lambeth) Library (external)	176 15
*Edwards Construction Co., Ltd.—	
Tate (Central) Library (external)	146 7

LONDON.—Supply of 5,000 super ft. of York paving, to the Lambeth B.C. :—

†H. J. Thomas, 11, Duke-street, S.E. At £11 10s. per 100 ft. super.

LONDON.—Supply of 500 tons of broken granite, to the Lambeth B.C. :—

*A. & F. Manuelle 100 tons	£1 9 4 per ton
*Granite, Lime & Clinker Co. 400 tons	1 8 0 ,,

NELSON (GLAM.).—For road alterations and repairs at Shingrig road, near Brooklands House, Nelson, the Caerphilly U.D.C. has accepted the tender of :—

Messrs. Blackborn & Co., Treharris.. £1,290

PLYMOUTH.—Supply of iron pipes to the Water Committee of the T.C. :—

*Cochrane & Co. (Woodside), Ltd., and Stanton Iron-works Co. £2,790 12 5

(Provided contractors are willing to divide the contract.)

STOKE-UPON-TRENT.—For conversion of 100 privy cesspools into water-closets, in Burslem, for the Health Department. The Surveyor, St. Peter's Chambers, Stoke-upon-Trent :—

*Wm. Ball & Son, Stoke-upon-Trent —50 privies £508

STRETFORD.—For widening of part of south side of Barton-road, for the U.D.C. :—

*Bethell & Sons £1,477 14 6

SURBITON.—Repairs to 3, Lambeth-villas, Surbiton, for the Metropolitan Water Board :—

Singleton & Son	£151 0
Gaze & Son	147 0
*T. Johnson	132 10

TINDALE CRESCENT, DURHAM.—For erection of a new workmen's club and institute. Mr. D. Crawford, M.S.A., architect, Market Chambers, Bishop Auckland.

McNaughton, Ltd., Middlesbrough	£4,659 11 3
W. White, Sunderland	3,915 0 0
Wm. Lax, Crook	3,876 16 0
A. Davidson, Shildon	3,833 6 5
E. Stonehouse, Shildon	3,813 14 2
Adamson & Sons, Shildon	3,669 14 6
Manners & Sons, Bishop Auckland	3,664 7 6
A. E. Earnshaw, Darlington	3,610 6 2
Moore & Sons, New Shildon	3,609 2 1
Building Guild, Newcastle on-Tyne	3,597 0 0
Telfer & Sons, Spennymoor	3,538 0 0
Dixon & Park, Shildon	3,513 18 4
*T. Hilton & Sons, Bishop Auckland	3,500 0 0
Douglas & Noble, New Shildon	3,479 13 4
Nicholson & York, St. Helen's Auckland	3,418 14 3

TIPTON.—For reconstruction of roads, for the U.D.C. :—

*C. Jackson, Burnt-tree-road	£4,967
*W. Element & Sons, Hurst-lane and Bloomfield-road	5,574

WELWYN.—For relaying of sewers in the parish of Welwyn, for the R.D.C. Mr. T. E. Moore, Mill lane, Welwyn. Quantities by F. E. Tudor, Engineer, High Cross, Aldenham, Herts :—

C. F. Ball, Letchworth	£2,872 2 6
G. Percy Trentham, Ltd., London	2,779 5 2
*Geo. Riley, Halifax	2,469 0 0
C. A. White, Bedford	2,254 18 4

WHITLEY.—For road widenings and sewer construction, for the U.D.C. Mr. A. J. Rousell, Council Offices, Whitley Bay :—

Jas. Wears & Sons, Pelton Fell	£120,461
T. A. Davies & Co., South Shields	77,006
F. M. Willers & Co., Bishop Auckland	62,500
Gilbert Park, North Shields	60,237
S. F. Davidson, Newcastle	56,765
John Lant, Newcastle	51,978
Purdie, Lumsden & James, Newcastle	51,902
Brims & Co., Newcastle	51,206
Dyson, Linsdely & Co., Chester-le-Street	51,115
Gus. Bailey, Ltd., Newcastle	49,673
George Armstrong, Hexham	48,933
E. R. Davidson & Co., Blaydon	48,749
National Building Guild, Ltd., Higham-place, Newcastle	48,241
J. G. Thompson & Sons, South Shields	45,479
W. T. Weir, Howdon	44,653
W. G. Armstrong & Co., Blaydon	44,137
Sir R. McAlpine & Sons, Newcastle	43,912
H. E. Pitt, Millfield. Sunderland	42,924
D. G. Somerville & Co., Newcastle	40,498
*R. Fisher, North Shields	39,163

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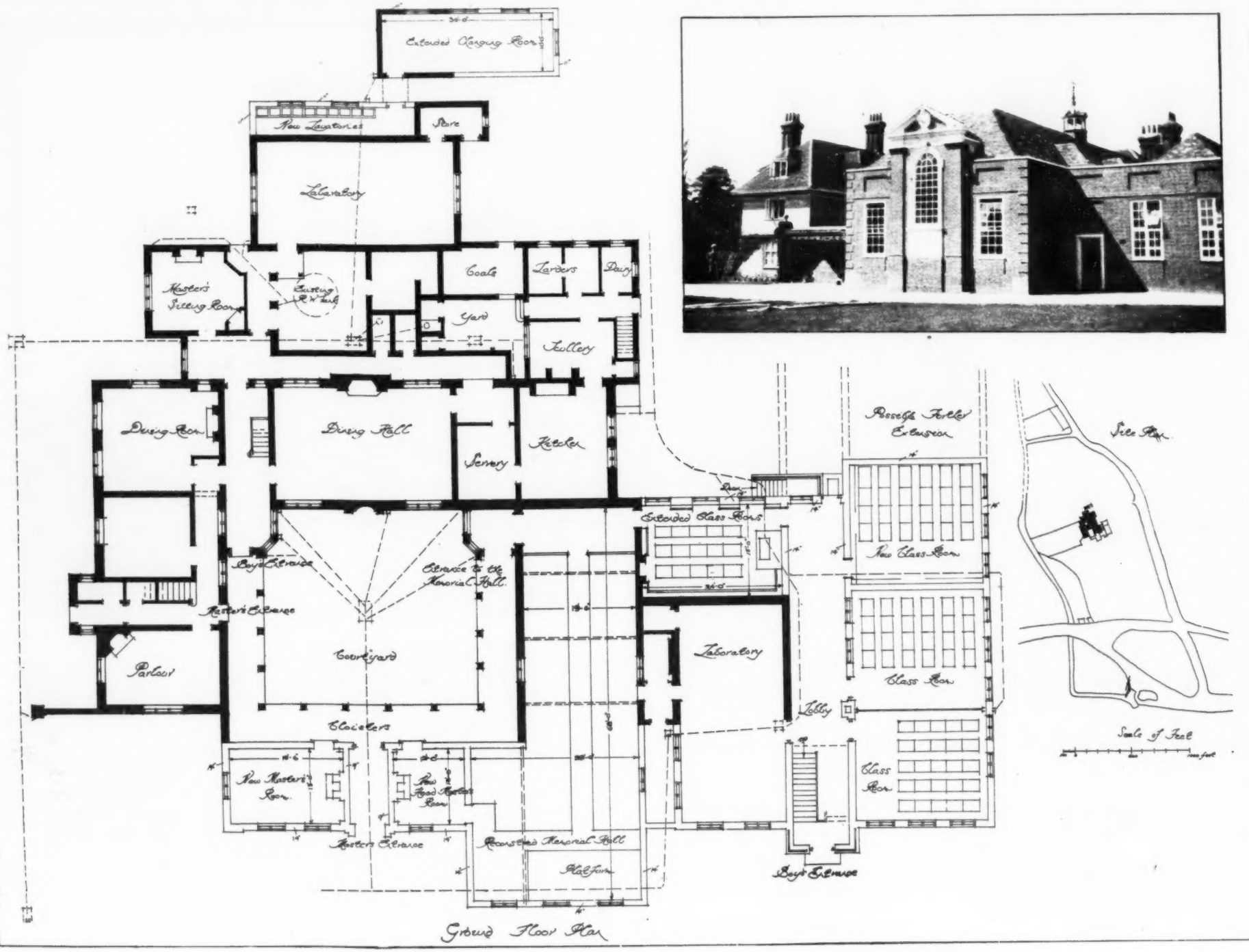
F. L. GRIGGS, DELT.

MR. H. S. GOODHART-RENDEL, F.R.I.B.A., ARCHITECT.

MR. H. S. GOODHART-RENDEL, F.R.I.B.A., ARCHITECT.



Ground Floor Plan.

NEWPORT FREE GRAMMAR SCHOOL, ESSEX: ALTERATIONS AND ADDITIONS.

MESSRS. KIEFFER & FLEMING, ARCHITECTS.

NEWPORT FREE GRAMMAR SCHOOL, ESSEX: ALTERATIONS AND ADDITIONS.

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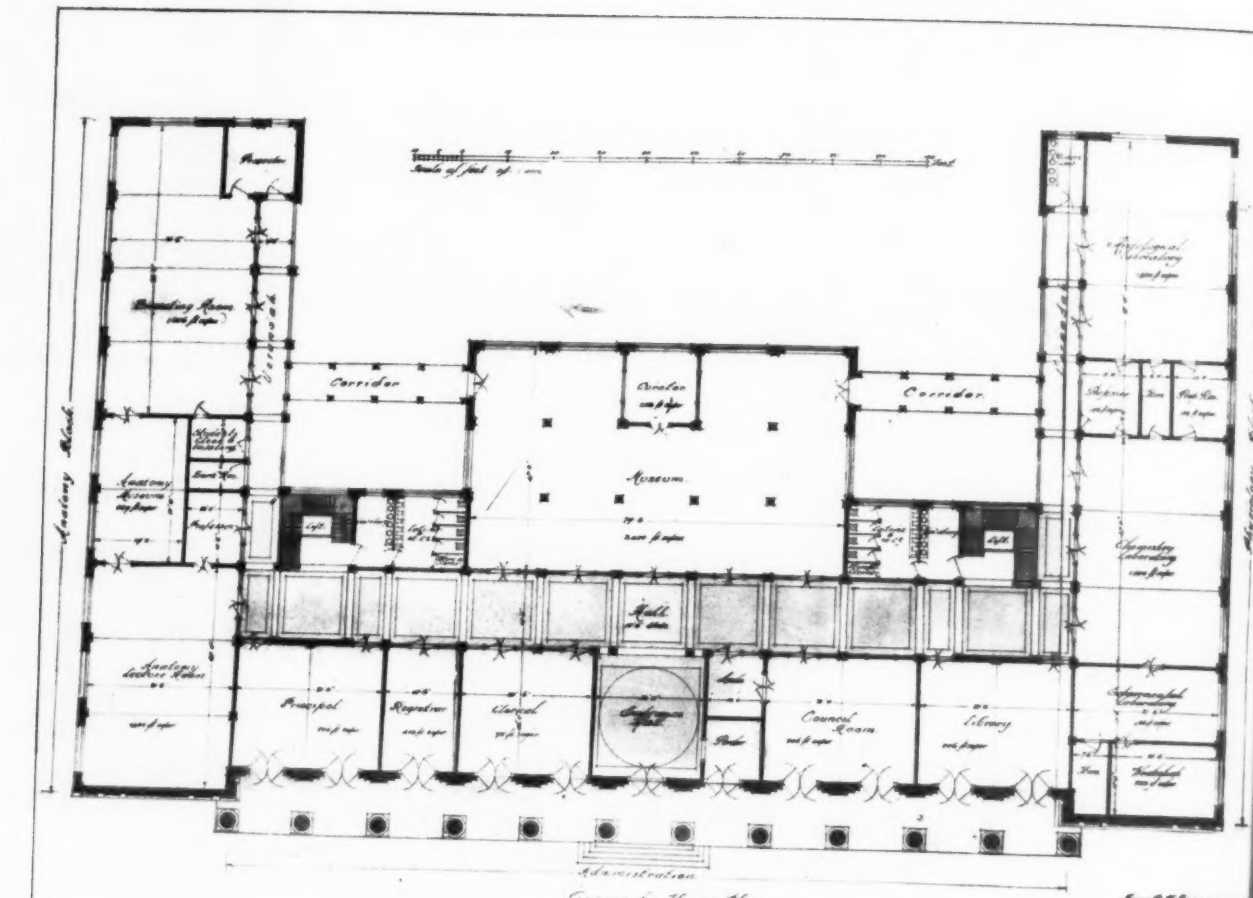
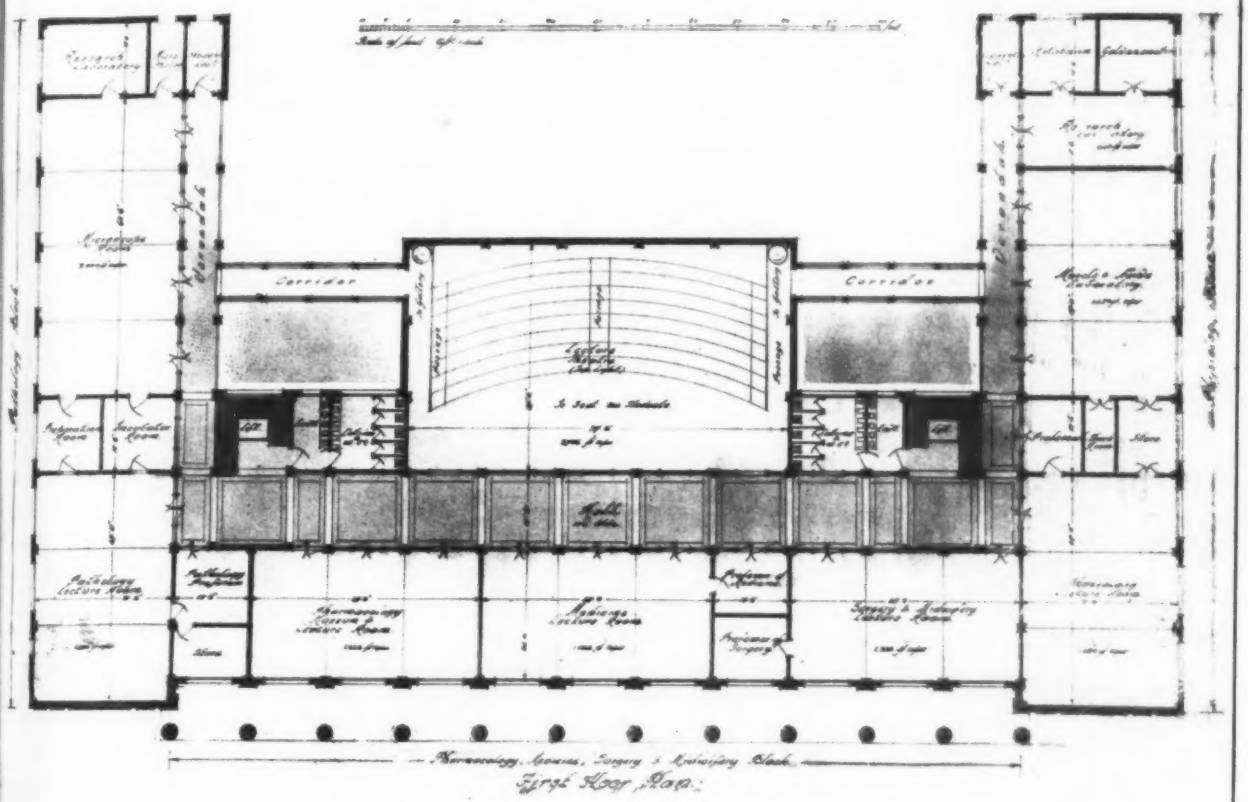


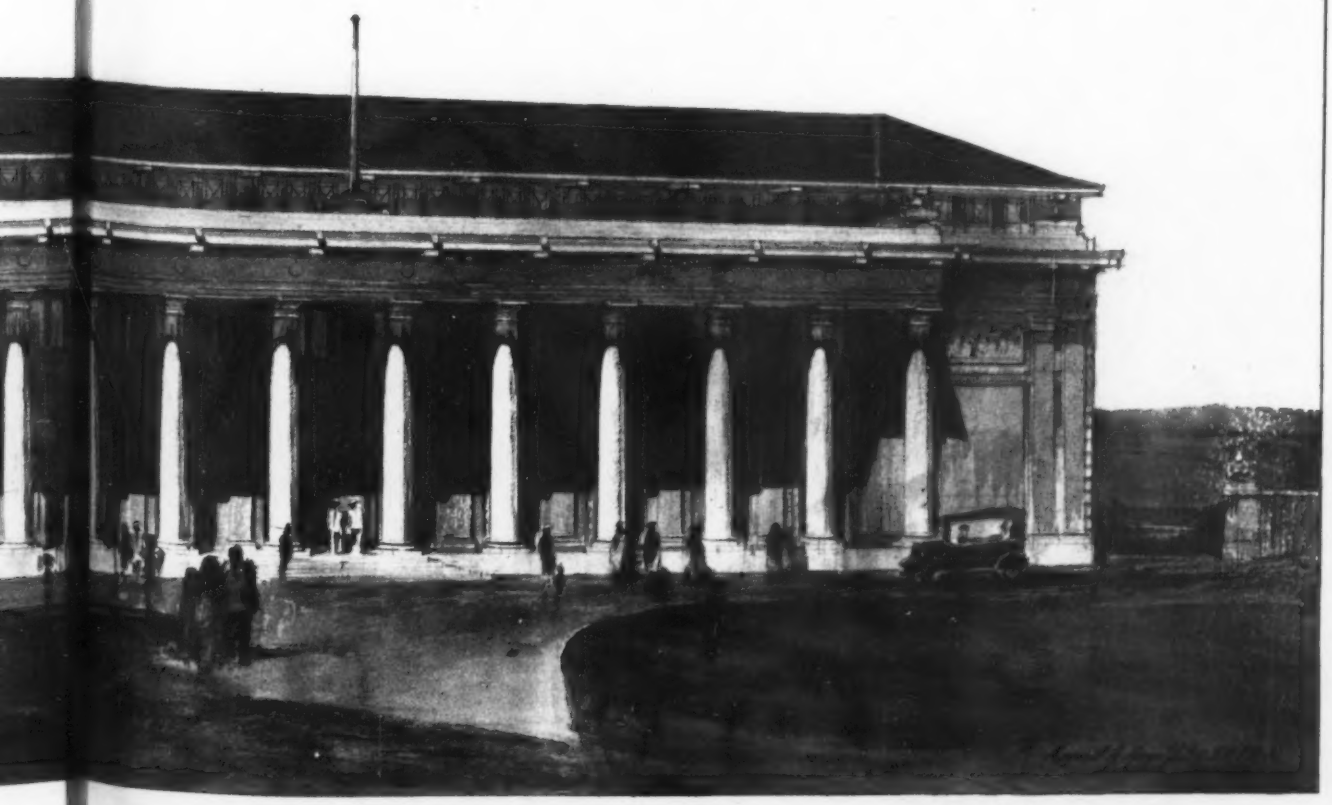
Ground Floor Plan.

R.A. EXHIBITION.

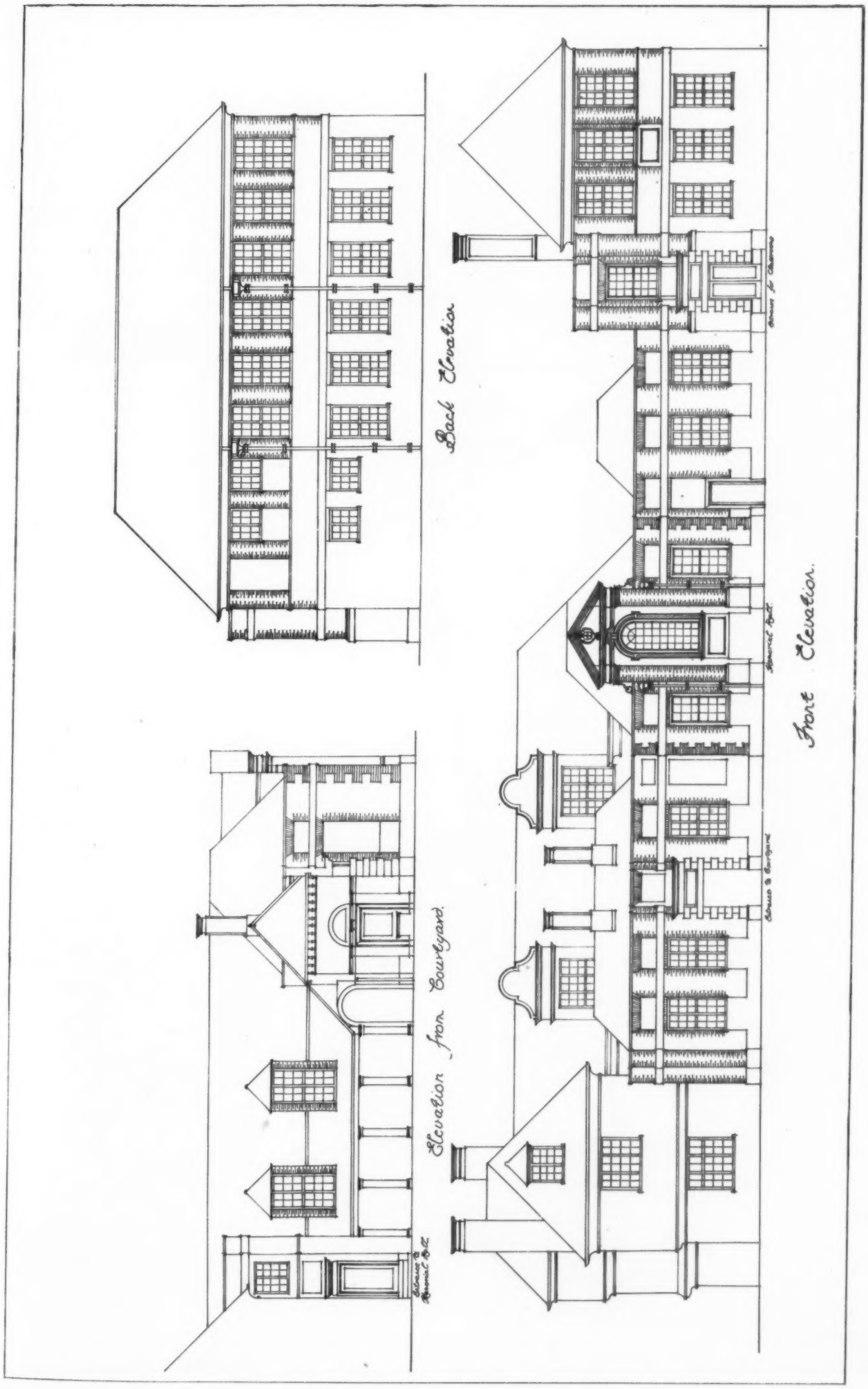
PROPOSED NEW MEDICAL SCHOOL



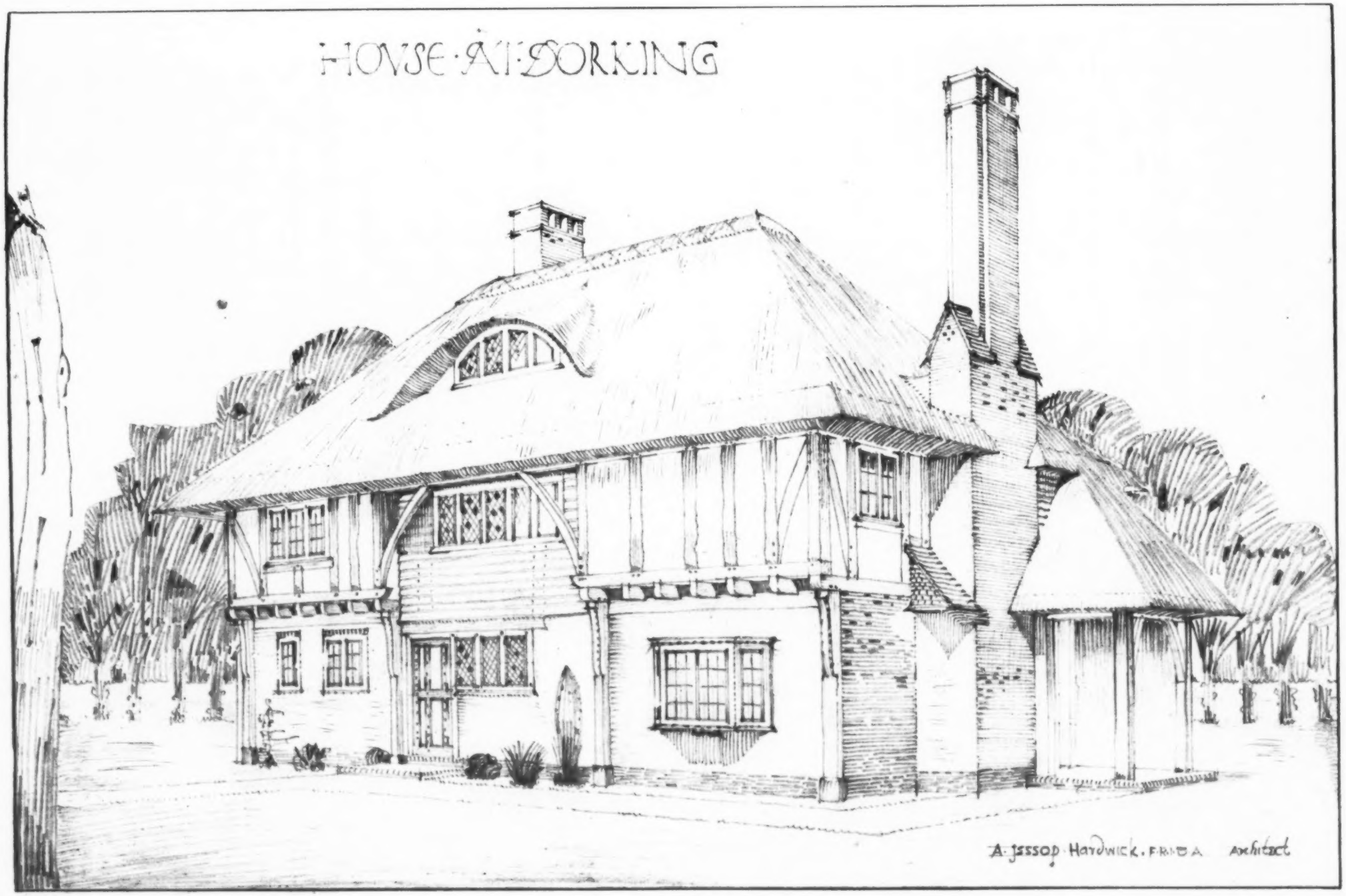
First Floor Plan.



CHOOL, APORE. MAJOR P. H. KEYS, F.R.I.B.A., ARCHITECT.



NEWPORT FREE GRAMMAR SCHOOL, ESSEX: ALTERATIONS AND ADDITIONS.
MESSRS. KIEFFER & FLEMING, ARCHITECTS.



MR. A. J. HARDWICK, F.R.I.B.A., ARCHITECT.